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ABSTRACT

The two-part report describing the Phase 2 findings of a two-phase study demonstrates the utility of the commercial contract training concept for satisfying certain Navy skill training requirements. Part 1 concerns source evaluation, skill analysis and selection, contractual considerations, and comparative training capability evaluation. It provides guidelines for management decision making subsequent to procuring training services from commercial sources. Over 100 pages of appendixes include: the study's survey forms, detailed analyses of the training capability of industry organizations and of Vocational/Technical (VOTEC) training institutions, the special forms used in the cost analysis, skill training charts, data describing the current Marine Corps Reserve VOTEC training program, and the proposed Chief of Naval Education and Training Instruction for "VOTECS (VOTEC Schools) Basic Skills Training from Commercial Sources." Part 2 is an Area VOTEC Support Center Guidelines package designed to facilitate the implementation, administration, and management of VOTEC training programs. It contains: descriptions of VOTEC basic concepts, coordination structure, and a typical functional process to obtain VOTEC training; contracting notes; typical survey forms; VOTEC sources of Navy related instruction; general specifications for the Navy/Marine Corps VOTEC Skill Training Program; and specifications for Navy Lithographer (LI) and Yeoman C (YN) training. (JR)

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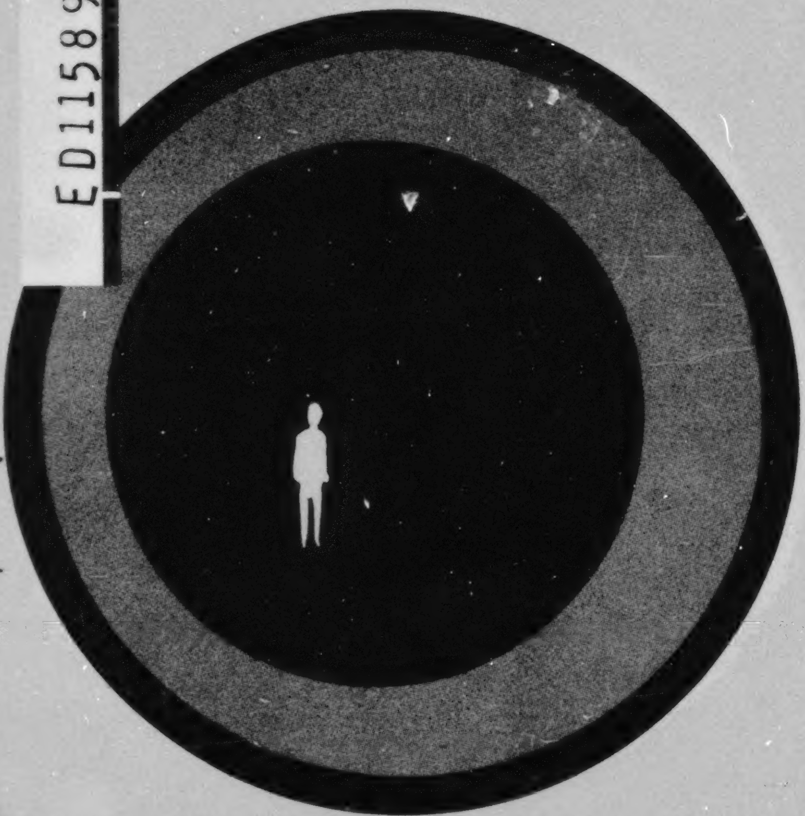

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13. ABSTRACT

This two-part report describes the Phase II findings of a two-phase study to determine if certain Navy skill training requirements could be satisfied through contract with qualified commercial sources. Phase I study findings, presented in TAEG Report 13-1, December 1974, address various commercial training programs, management systems, technological advances, instructional techniques, curricula, and financial management practices potentially applicable to the Navy training system.

Whereas the Phase I study effort dealt with a survey and preliminary analysis of the training capability of commercial sources, the effort described in this report demonstrates the utility of the commercial contract training concept. It addresses the major issues concerned with source evaluation, skill analysis and selection, contractual considerations, and comparative training capability evaluation. It provides guidelines for analyses necessary for sound management decisions subsequent to initiation of procurement action of training services from commercial sources. TAEG Report 21-2 contains information useful to Area Vocational/Technical (VOTEC) Support Center personnel and others involved with implementation and functional management of a VOTEC program. Most importantly, Phase II presents a plan to initiate, develop, implement, manage, and administer commercial contract training programs to support appropriate active and reserve Navy skill training requirements.

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(PHASE II)

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FOREWORD

This is the second of three reports which present the findings of a two-phase study of the feasibility of using commercial sources to train Navy and Marine Corps personnel in selected basic skills. The study was conceived by the CNET Executive Staff and assigned to the TAEG by the CNETS on 14 August 1972. The Marine Corps was included in the Phase II portion of the study in April 1973 at the request of the Commandant of the Marine Corps.

The first report (TAEG Report 13-1) was concerned with the results of the Phase I analysis of the training capabilities of industrial organizations and public and private training institutions. The Phase I analysis included training techniques, management and administrative practices, training cost considerations, and Armed Service Procurement Regulations (ASPR) application as related to commercial contract training. The findings and recommendations of the Phase II portion of the study are presented in this report and in TAEG Reports 22-1 and 22-2. This report addresses the application of commercial contract training to Navy training and TAEG Reports 22-1 and 22-2 address the application to Marine Corps training. Both Phase II reports are based on the Phase I data base and include recommended plans for the implementation, administration, and management of the commercial contract training concept, including procurement and costing considerations and techniques.

This report is made up of two parts. Part I forms the main body of the report and addresses the major findings of the study and recommends alternative plans for, and applications of, the commercial contract training concept. Part II, presented in TAEG Report 21-2, is an "Area VOTEC Support Center Guidelines" package which includes documentation designed to assist personnel charged with the responsibility of implementing, administering, and managing commercial contract training programs. This user's guide includes a sample skill specification and contract schedule, list of vocational/technical (VOTEC) schools, VOTEC evaluation procedures, and contractual considerations.

The study reported here was undertaken by a six-man team of interdisciplinary specialists. The team was composed of four education specialists (D. R. Copeland, T. Curry, S. Gates and J. Henry), an economist (Dr. W. Swope), and an engineer (R. Nutter). All team members had backgrounds relevant to training and training applications.

Commercial contract training, used in appropriate situations for appropriate skills, can be an effective means of complementing the Navy's present training capability. The concept is applicable to active duty training, reserve training, interservice training, and to mobilization planning. It is well suited to Navy skills which have counterpart civilian skills, to skills having low volume student input, and to situations where peak training loads occur. Properly implemented and managed, the concept of commercial contract training provides an effective alternative for reducing training costs while simultaneously maintaining the Navy's high standards for quality training. This concept is discussed in the following sections of this report and should be seriously considered by all concerned with improving the effectiveness and efficiency of the Navy training system.

ACKNOWLEDGMENTS

The Training Analysis and Evaluation Group (TAEG) is indebted to many people in the Department of Defense, industry, and public and private educational institutions. Without the cooperation and the generous contribution of time, thought, and data by these personnel, who are too numerous to mention, the findings of this project would not have been complete. We are particularly appreciative of the data provided by industrial sources (in some cases classified as company confidential) which provided a quantitative data base upon which to form the conclusions and recommendations presented in this report. Personnel interviewed were assured that none would be quoted directly nor would cost data provided be identified by source unless such data were available in published form. Particular appreciation is extended to Messrs. Webb Lennox of the Procurement Services Office, Naval Training Equipment Center, and Mertz Hanberry, Code 0135, Chief of Naval Education and Training, for the consultation services provided relevant to contractual matters. The project team also extends their sincere appreciation to Mr. Douglas Gamble, Naval Publications and Printing Service Branch Office (NPPSBO), Orlando, and to LICM M. R. Vaillancourt, USS ORION (AS-18), for the technical expertise they provided during the analysis of the Navy Lithography rating. Regrettably, space does not permit us to individually recognize all the other people who have contributed to this project. To these people, we sincerely say, "Thank You."

SUMMARY

INTRODUCTION

Publication of this report completes a comprehensive two-phase study conducted by the TAEG to determine the utility of using qualified commercial sources (industrial organizations, public and private training institutions) to train Navy and Marine Corps personnel in selected skills. The study, assigned to the TAEG in August 1972 by the CNETS, was expanded by the CNET-approved request of the CMC in April 1973 to include Marine Corps skill training.

The Commercial Contract Training Analysis study was conducted in two phases. The Phase I findings are documented in TAEG Report 13-1. The Phase I report demonstrates the feasibility of the commercial contract training concept and documents the training capabilities, techniques, and innovations used in the commercial environment.

Development of procedures for implementation of commercial contract training programs for appropriate Navy and Marine Corps skills was the major Phase II study task. Implementation procedures for Navy programs are presented in this report and procedures for Marine Corps skill programs are presented in TAEG Reports 22-1 and 22-2. These procedures are based on the basic conclusion of this study that public VOTEC institutions will normally be the most cost and training effective commercial training sources for selected Navy skills. Prerequisites for successful implementation of the commercial contract training concept include a CNET issued VOTEC program instruction, a general contract training specification, and VOTEC program guidelines. These documents, plus others, are included in Parts I and II of this report for consideration by the CNET.

The TAEG is convinced that commercial sources, particularly VOTEC institutions, have a definite place in the Navy's vast training system. In appropriate situations, and for appropriate skills, these sources may be used to provide cost effective, quality training to Navy active duty and reserve personnel. These sources may also be called upon to support mobilization training requirements. However, as with any new concept, the success of commercial contract training will ultimately be determined by the degree of acceptance and support extended by management and by those assigned responsibility for VOTEC program implementation and administration. The Navy will realize substantial benefit in terms of increased capability and cost effectiveness if this progressive concept is adopted to complement the Navy's training system.

STUDY OBJECTIVES

Two primary study objectives were established by the CNET and the CMC:

Phase I. Identify commercial sources which possess capabilities for providing relevant and effective training in selected specialties in support of the Navy training system.

Phase II. Develop plans, methodology and final recommendations for utilizing commercial sources, under contract, to conduct Navy and Marine Corps training for selected skills.

STUDY PROCEDURES

The procedures employed in this study included review of appropriate literature and personal visits to numerous industrial organizations, public and private educational institutions, and Navy and Marine Corps activities. Questionnaires were developed to support all data collection inquiries thus insuring comparability and uniformity of data. The majority of recommendations and conclusions presented in this report are founded on direct observations of various Navy activities, commercial training techniques, equipment, management procedures, and programs in operation.

STUDY FINDINGS AND RECOMMENDATIONS

A summary of the major Phase II study findings and recommendations is presented below.

FINDINGS.

1. Public VOTEC training institutions are, in terms of total effectiveness and utility to the Navy, the best commercial sources for supplementing active and reserve skill training.

2. The DoD's philosophy and attitude toward training have changed appreciably in recent years. Progressive endeavors, such as the commercial contract training concept now being explored, can favorably impact upon many major issues of common concern to the armed services and should be supported and promoted at the highest levels of DoD management.

3. Issues that must be considered in establishing skill training programs with public VOTEC institutions include:

    a. Navy/civilian community relations

    b. Interservice training objectives

    c. Navy student input

    d. Armed Service Procurement Regulations (ASPR)

e. Navy peak training load requirements

f. Accredited training

g. Student environment (Navy versus civilian)

h. Proximity of training institution to Navy installation

i. Cost effectiveness

j. VOTEC institution training capability

4. Training for Lithography and Yeoman "C," both low volume rates, can be cost effectively obtained from public VOTEC training institutions. The Machinery Repairman rate is not a good candidate for commercial contract training because of the outstanding existing training program offered by the Navy and because of the Navy specific requirements inherent in this rate.

5. Approximately 39 percent of the 18 additional rates examined are excellent candidates for public VOTEC institution training. Furthermore, 44 percent are considered good potential candidates, and only 17 percent of these 18 rates are considered unsuitable for commercial training.

6. Public VOTEC institutions, private training institutions, and nondefense industrial organizations collectively represent a powerful training resource in the event of mobilization. This capability should appropriately be reflected in mobilization plans.

7. A realistic estimate of the absolute magnitude of cost savings to be realized through adoption of the commercial contract training concept requires the development of training specifications for each skill and the identification of specific training institutions where the training is to be performed. Skill areas where enrollment is relatively low offer the greatest potential for cost savings.

8. Many opportunities to utilize civilian institutions for military training are available. If a management policy is adopted which will emphasize and promote flexibility at the operational level, a considerable amount of Navy skill training can be acquired from VOTEC institutions at nominal costs.

9. The appropriate contractual vehicle for most VOTEC programs will be the "Negotiated Indefinite Quantity Contract." The "both" party signature approach (Standard Form 26 and DD Form 1155) to order training services is preferred over the "single",party signature approach (Standard Form 33).

10. An effective centralized management system is essential to a successful Navy-wide VOTEC training program. Centralized management of policy and funding by CNET is necessary for program control and continuity. Functional program management via command elements located at major Navy installations would be most effectively provided by the CNETS.

11. Administrative control of VOTEC programs should flow from the CNET (management and funding) to the CNETS (implementation management) to the Area VOTEC Support Centers (AVSCs) (user services) to the level four Fleet training and operational commands. A minimum of one civil service education specialist at each AVSC is considered essential to promote program continuity.

12. It is essential that AVSCs be established at major Navy installations (Memphis, Great Lakes, Orlando, San Diego, and Norfolk) where training and contract personnel are available to support VOTEC training programs. These support centers will serve as an advisory, contracting, and monitoring service agency to insure quality contract training and will provide interface with Navy (active and reserve) units and VOTEC institutions.

13. Implementation of the VOTEC training concept should include tasking agreements with commanders of bases designated as AVSCs. These tasking agreements should include direct and indirect staffing for the AVSCs, facility space with equipment allowances, and authority to use appropriate base staff functions to support the VOTEC program. Four project officers representing Air, Surface, Subsurface, and Reserve Forces will be required for approximately one month at the CNET to implement the concept.

14. It is essential that a CNET instruction for VOTEC training be issued if the VOTEC concept is to be a viable Navy training resource.

15. Area VOTEC Support Centers will require a minimum core staff consisting of one supervisor (0-4, 0-5) on a part-time basis, one VOTEC training officer (0-2, 0-3) on a part- or full-time basis, one training support chief (E-8, E-9) or education specialist (GS-9, GS-11) on a part- or full-time basis, and one administrative clerk (E-6) on a full-time basis.

16. VOTEC institutions considered for active duty and reserve training should be limited to those institutions within a 25 mile radius of the Navy base facility. The cost effectiveness of the concept decreases and administrative problems increase rapidly as this limit is exceeded.

17. A comprehensive portfolio is required which identifies the training capabilities of all public and private VOTEC institutions and major industrial organizations within the continental United States (CONUS).

RECOMMENDATIONS.

1. The CNET should adopt the VOTEC concept for selected basic skill training at the "A" School or apprentice level.

2. The CNET should place emphasis on public institutions as the major source of VOTEC training for selected basic skills.

3. The VOTEC training program during peacetime should be limited to low volume pipeline training by individual VOTEC institutions.

4. The VOTEC training concept should be considered for low volume basic skill foreign training requirements.

5. The VOTEC training concept should be included for peak training requirements and low volume basic skill training as part of the CNET Long Range Plan.

6. The CNET should implement plans to include VOTEC training as an adjunct to mobilization planning.

7. The Navy VOTEC program should be centrally managed by the CNET concerning policy, planning, programs, and budgeting.

8. The CNET should delegate the implementation of the VOTEC program to the CNETS.

9. The CNETS should establish AVSCs at selected CNET training installations. The initial AVSCs should be established at Memphis, Great Lakes, Orlando, Norfolk, San Diego, and in Hawaii.

10. The establishment of AVSCs should be limited to Navy complexes having procurement services and comptroller functions capable of supporting the VOTEC program.

11. The CNETS should be tasked to maintain a comprehensive portfolio on the capabilities of commercial contract training sources. This VOTEC information will be used for selection of commercial training sources for peacetime training and for mobilization planning.

12. The CNET should establish a policy of using, during peacetime, VOTEC training institutions within approximately 25 miles of selected Navy installations.

13. The proposed CNET Instruction 1550___ should be issued by the CNET for implementation of the VOTEC program.

14. The Navy AVSCs should use the VOTEC program guidelines established by TAEG Report 21-2.

15. The AVSCs should use the Training Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program as the basic document when supported by the appropriate specific curriculum for defining VOTEC programs to be procured. This specification is presented in TAEG Report 21-2.

16. The CNET should establish a policy that VOTEC contract agreements be "Negotiated Indefinite Quantity Contracts" with "both party" signature as defined by the ASPR.

17. The CNET should conduct a pilot VOTEC training program using the Lithographer rating at the apprentice level. It is suggested that the Lithographer curriculum as developed by the TAEG be used for this program. It is further suggested that this pilot VOTEC program be conducted in the Orlando area.

18. The CNET should consider VOTEC training in the planning of the Navy Enlisted Occupation Classification System (NEOCS) for selected low volume apprentice level programs.

19. The NEOCS planners should consider the use of apprentice level training for the Media Occupational Field for initial VOTEC training.

20. The CNET should consider a single site AVSC in the San Diego area and Hawaii to jointly serve the Navy and Marine Corps.

21. The CNET should suggest to the Chief of Naval Reserve the application of the VOTEC training concept for "weekend" reserve training and annual active duty for training.

SECTION I

INTRODUCTION

This report presents the final conclusions and recommendations of a two-phase study on the feasibility of using commercial sources to provide training to enlisted personnel in certain vocational/technical skills. A "commercial source" is defined as any nonfederal industrial organization or nonfederal post-secondary public or private institution engaged in vocational technical training. The study background, problem, approach, and organization of this report are discussed in this section.

BACKGROUND

The concept of using commercial sources to train military personnel in certain vocational/technical skills was conceived by the CNET Executive Staff and assigned to the TAEG for study in August 1972. The potential payoff of the study, in terms of training cost reductions, increased training capability and effectiveness, and beneficial impact upon reserve and mobilization training, was considered sufficient to justify a large allocation of TAEG resources to the study effort.

The study was divided into two distinct phases. Broadly speaking, Phase I addressed the issue of determining concept feasibility. The feasibility of using commercial sources, particularly public vocational/ technical institutions, for certain types of skill training was affirmatively concluded at the completion of Phase I. The supporting rationale for this conclusion plus relevant data on commercial training costs, management philosophies, instructional techniques and equipment, training capability, contracting considerations, and other related areas is presented in TAEG Report 13-1.

The determination of concept feasibility led to the decision to proceed with the Phase II (implementation) portion of the study, the results of which are presented herein. Unlike Phase I, concerned only with the application of commercial training to the Navy, Phase II considers the application to the Navy and to the Marine Corps. Inclusion of the Marine Corps in the study was authorized by the CNET on 7 May 1973 in response to the request of the CMC. Thus, two separate reports, one for the Navy and one for the Marine Corps, have been published to document the Phase II study findings and recommendations.

STATEMENT OF THE PROBLEM

This study is based on a problem common to all of the military services; i.e., the problem of increasing the capability to cost effectively satisfy the sophisticated training requirements necessary to meet the growing complexities of modern technology. The complexity of the problem is compounded by the alarming rate at which training costs have risen during times of severe funding and personnel cutbacks. The goal of this study is to devise solutions to reduce these costs through commercially conducted training. To satisfy this goal, the CNET and Headquarters Marine Corps established two primary objectives for this study:

Phase I Objective - Identify commercial sources which possess capabilities for providing relevant and effective training in selected specialties in support of the Navy training system.

A secondary Phase I study objective, structured to satisfy the stated CNET tasks, was to identify unique and innovative civilian training approaches and practices in the areas of management, program development, instructional techniques, instructional software and hardware, and cost controls which have potential application to Navy training. (Findings are reported in TAEG Report 13-1 and TAEG Technical Memorandum 75-1.)

Phase II Objective - Develop plans, methodology and final recommendations for utilizing commercial sources, under contract, to conduct Navy and Marine Corps training for selected skills.

STUDY APPROACH

Attainment of the Phase II study objective was based upon specific tasks established by the project team. Completion of these tasks would satisfy all requirements included in the Phase II study objective. These tasks are presented below:

1. Determine the most appropriate commercial sources (i.e., industry, private training institutions, or public VOTEC institutions) to provide training in selected skills for the Navy and the Marine Corps.

2. Determine if the Navy and Marine Corps skills assigned for analysis are appropriate skills for commercial training and, if so, whether the training will be cost effective (refer to table 1).

3. Develop procedures for the management and administration of Navy and Marine Corps commercially conducted skill training programs.

4. Conduct an economic analysis of the cost of Navy, Marine Corps, industry, and public and private VOTEC institutions training.

5. Determine the most effective contractual techniques for procuring training services from commercial sources.

TABLE 1. NAVY AND MARINE CORPS SKILLS ANALYZED

NAVY

NEC	Description	DoD Code
4400	Machinery Repairman	702
3600	Lithographer	740
2514	Yeoman (C)	511

MARINE CORPS

MOS	Description	DoD Code
0441	Logistics Man	551
1121	Plumbing and Water Supplyman	720
1122	Well Driller	730
1141	Electrician	721
1142	Electrical Equipment Repairman	721
1161	Refrigeration Mechanic	720
1171	Hygiene Equipment Operator	840
1173	Hygiene Equipment Repairman	840
1316	Metal Worker	700
1341	Engineer Equipment Mechanic	612
1345	Engineer Equipment Operator	730
1371	Combat Engineer	030
1400	Basic Drafting, Surveying and Mapping Man	413
1401	Basic Mapping Officer	
1402	Mapping Officer	
1411	Construction Draftsman	413
1421	Surveyor	412
1422	Surveying and Drafting Chief	412
1431	Map Compiler	411
1432	Cartographer	411
1453	Mapping Chief	411
1500	Basic Printing and Reproduction Man	740
1501	Basic Printing and Reproduction Officer	
1502	Reproduction Officer	8G
1521	Duplicating Man	740
1522	Offset Pressman	740
1531	Plated Layout Man	740
1532	Process Cameraman	740
1541	Reproduction Chief	740
1542	Reproduction Equipment Repairman	740

TABLE 1. NAVY AND MARINE CORPS SKILLS ANALYZED (continued)

MOS	Description	DoD Code
2511	Wireman	621
2800	Basic Telecommunication Maintenance Man	160
3200	Basic Repairman	790
3201	Basic Repairman Officer	
3202	Repair Services Officer	8G
3211	Fabric Repairman	760
3212	Fabric Repairman Chief	760
3241	Office Machine Repairman	670
3242	Office Machine Repair Chief	670
3253	Repair Chief	670
3310	Bakery Officer	8E
3513	Body Repairman	704
3516	Automotive Mechanic	610
3518	Fuel and Electric Systems Repairman	610
3519	Motor Transport Chief	811
3531	Motor Vehicle Operator	811
3533	Tractor Trailer Operator	811
3537	Truckmaster	811
4002	Data Systems Automation Officer	7E
4006	Data Automation Operations Officer	7E
4010	Digital Computer Systems Software Officer	7E
4013	Card Punch Operator	531
4015	Off-Line Equipment Operator	531
4019	Data System Librarian	531
4033	Computer Operator IBM S/360	531
4034	Master Computer Operator IBM S/360	531
4059	Programmer, Optical Character Recognition System	532
4063	Programmer, COBOL IBM S/360	532
4065	Programmer, ALC IBM S/360	532
4069	System Programmer, IBM S/360	532
4093	Data Systems Operations Chief	532
4095	Data Systems Programming Chief	532
	Programmer, Burroughs 3500	
	Computer Operator, Burroughs 3500	
4423	Legal Services Reporter - GCM (closed Microphone)	512
4911	Illustrator	414
4941	Audiovisual Equipment Technician	191

6. Develop for the Navy and for the Marine Corps a VOTEC implementation plan to include:

- A proposed Marine Corps Order and a proposed CNET Instruction for VOTEC training.
- General specification for basic skill training by industry or VOTEC.
- Recommended VOTEC management plans using current Navy and Marine Corps chains of command with limited or no additional manpower resources.
- A list of VOTEC institutions, within commuting distance of Navy and Marine Corps installations, and their training capability in specific Navy and Marine Corps skills.
- Cost-effective contract procedures for procuring VOTEC training.

7. Establish standard criteria for evaluating the training capability of commercial training sources.

These tasks were accomplished through the basic study approach discussed in TAEG Report 13-1. Navy and Marine Corps installations (refer to table 2) were visited to obtain data on training skill requirements, training costs and management practices, and to assess operational training needs and utilization of trained personnel. For the most part, data obtained during Phase I on the training capability of industrial organizations and public and private VOTEC institutions were sufficient to meet the Phase II study objective; data gaps were filled in when necessary by additional visits or by correspondence. Major issues, such as the proposed Marine Corps Order, proposed Navy Instruction, contractual procedures, management plans, and skill specifications, were staffed through appropriate organizations (i.e., Headquarters Marine Corps, CNET, Procurement Services Offices, and Training Schools) to insure compliance with established policy and regulations.

The solutions proposed in this report to the problem of effectively reducing training costs will in many cases require progressive changes to established procedures and concepts. If, however, these solutions are accepted in the vein they are proposed, and given a "fair" chance, the probability of success is high. Since the ultimate success or failure of these solutions is dependent on the personnel responsible for implementation, considerable effort has been expended to develop techniques for user implementation of the VOTEC concept. These techniques are presented in Part II of this report.

TABLE 2. MILITARY ACTIVITIES CONTACTED

NAVY	MARINE CORPS	ARMY
1. Chief of Naval Education and Training, Pensacola, FL	1. Headquarters, U.S. Marine Corps, Washington, DC	1. Defense Mapping Agency Ft Belvoir, VA
2. Chief of Naval Education and Training Support, Pensacola, FL	2. Marine Corps Base, Twentynine Palms, CA	2. Ft Benjamin Harrison, IN
3. Bureau of Naval Personnel, Washington, DC	3. Marine Corps Base, Camp Lejeune, Jacksonville, NC	3. U.S. Transportation School, Ft. Eustis, VA
4. Service School Command, San Diego, CA	4. H-S BN 4th FSR FORTRPS Atlanta, GA	
5. HQ LFTC Amphibious Training Command, San Diego, CA	5. HQ 4th Marine Reserve Camp Pendleton, CA	
6. Naval Air Maintenance Training Group, NAS Memphis, Millington, TN	6. Marine Corps Development and Education Center, Quantico, VA	
7. Naval Air Rework Facility, Norfolk, VA	7. Marine Corps Reserve Unit, 4th Service Battalion, 4th Marine Div., Augusta, GA	
8. NAS Pensacola, FL	8. Schools Battalion, Marine Corps Base, Camp Pendleton, CA	
9. Naval Air Technical Training, NAS Memphis, TN	9. Marine Corps Recruit Depot, San Diego, CA	
10. Naval Education and Training Program Development Center, Pensacola, FL	10. Marine Corps Air Station, Kaneohe Bay, Hawaii	

TABLE 2. MILITARY ACTIVITIES CONTACTED (continued)

NAVY	MARINE CORPS	ARMY
11. Naval Education and Training Support Center, Norfolk, VA	11. Fleet Marine Force Pacific Headquarters, Camp Smith, Hawaii	
12. Naval Guided Missiles School Virginia Beach, VA	12. Marine Corps Air Station, Futema, Okinawa	
13. Chief of Naval Technical Training, Millington, TN	13. 3rd Marine Division, FMF, Camp Butler, Okinawa	
14. Service Schools Command Great Lakes, IL	14. 1st Marine Aircraft Wing, Okinawa	
15. Navy Personnel Research and Development Center, San Diego, CA	15. Marine Corps Air Station, Iwakuni, Japan	
16. Service School Command Orlando, FL	16. Marine Recruit Depot, Parris Island, SC	
17. Naval Education and Training Support Center, San Diego, CA	17. Marine Corps Supply Center Albany, GA	
18. Naval Education and Training Support Center (Cadre), Hawaii	18. Marine Corps Recruit Depot, San Diego, CA	
19. Naval Technical Training Center, Meridian, MS		
20. Naval Education and Training Support Center, Charleston, SC		
21. Norfolk Naval Shipyard Portsmouth, VA		

REPORT ORGANIZATION

This report consists of two parts. Part I addresses the major Phase II study issues and includes five major sections in addition to this Introduction. Section II presents a macroscopic view of the Phase I and Phase II "Study Procedures," including the issues involved, their interrelationship and impact upon existing and planned local, state, and national programs and upon the Navy and Marine Corps training philosophies. Specific topics addressed include industry, public and private training institutions, economic analysis, management, contracts, administration, and development of commercial contract training techniques. Section III discusses the Phase II "Study Findings and Conclusions" relevant to such major issues as current DoD training processes and training doctrine; mobilization and reserve training considerations; contract training alternatives; economic, contractual, administrative and management considerations; training source selection criteria; and training certification. Section IV presents the "Proposed Contract Training Implementation Plan" as developed from the study findings and conclusions. A brief "Summary of Study Findings and Conclusions" is presented in Section V. The final "Recommendations" of this study, including short and long range planning considerations, are presented in Section VI.

Part II of this report is an "Area VOTEC Support Center Guidelines" package developed to assist the proposed AVSCs in the implementation, administration and management of VOTEC training programs. This part of the report is published under separate cover (TAEG Report 21-2) with limited distribution. It includes:

- Description of VOTEC Basic Concepts
- Description of VOTEC Coordination Structure
- Description of Typical Functional Process to Obtain VOTEC Training
- Contracting Notes
- Typical Survey Forms
- VOTEC Sources of Navy Related Instruction
- General Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program
- VOTEC Training Specification for Navy Lithographer (LI) Skill Training
- VOTEC Training Specification for Navy Yeoman C (YN) Training.

Seven appendices are provided. Appendix A includes the survey forms used in this study. Appendices B and C present detailed analyses of the training capability of industry organizations and of VOTEC training institutions. Appendix D contains the special forms used in the economic analysis. Appendix E includes information pertinent to the specific NECs assigned for study, and appendix F presents data describing the current Marine Corps Reserve VOTEC training program. Appendix G is the proposed CNET Instruction for "VOTECS (Vocational/Technical Schools) Basic Skills Training from Commercial Sources."

SECTION II

STUDY PROCEDURES

This section of the report describes the different study procedures used to accomplish the specific objectives established for this two-phase effort. Emphasis is placed upon the considerations which influenced the selection of major Phase I study issues, procedures for studying these issues, and the impact of these procedures on the Phase II study findings and conclusions presented in the next section. The specific Phase II study procedures used to develop the administration and management concepts for implementing commercial contract training, establish concept utilization criteria, and to develop the final study recommendations presented in section VI are also addressed.

PHASE I CONTRACT TRAINING STUDY CONSIDERATIONS

The basic study procedures included an exhaustive review of published reports concerned with all facets of commercial training techniques and capability, visits to industrial organizations, public and private VOTEC institutions and Navy training activities, and interviews with key Government and State personnel knowledgeable in training and education. These basic procedures were modified and tailored as necessary to accommodate the specific requirements of each of the major Phase I study issues.

These issues were:

1. Industry (Training capability and techniques)
2. Public and Private Nonfederal Training Institutions (Training capability and techniques)
3. Training Economics
4. Training Management
5. Training Administration
6. Contractual Techniques.

Considerable time and effort was expended in determining these issues and in developing specific study procedures for these issues. In view of their impact upon the final outcome of the project, many related considerations had to be weighed before final selection of the major study issues. These considerations, and their resolution relevant to the study issues and study procedures of Phase I, are discussed in the following paragraphs.

INDUSTRY. In dealing with the issue of industry training capability assessment, the first problem confronted was that of selecting a valid sample of industrial organizations for in-depth analysis that represented a true cross section of the training capability of the vast American industrial complex. For this reason, considerable research was devoted to screening organizations using such criteria as size, products, skill training programs, location, R&D training programs, and reputation in the industrial training community. These criteria influenced the development of the study procedures as well as the selection of the organizations to be studied. For economic reasons explained in TAEG Report 13-1, industrial organizations near Navy installations would have been preferred for the sample; however, this proved to be an unrealistic requirement in the case of industry.

Provisions for such considerations as union influence, labor market, economic environment, job trends, social programs, and technology trends were included in task study procedures to give a complete picture of industry training. Data collection questionnaires, tailored to include these and other considerations, were used during visits to all industrial organizations. These visits were structured to address all conceivable factors related to training capability determination and to include all levels of corporate management. The study procedures used proved effective in attaining the Phase I study objective and impacted favorably upon the final study recommendations presented in this report.

PUBLIC AND PRIVATE NONFEDERAL TRAINING INSTITUTIONS. The Phase I investigation strongly suggested that public and private VOTEC schools represent an important potential source of essential Navy training in a wide variety of skill areas. These findings prompted a follow-on effort to identify specific schools and to acquire more detailed and specific data in a number of pertinent areas.

The main thrust of this phase of inquiry was directed toward the public sector, since these institutions appear to offer the more economical and comprehensive resources for contract training.

The selection of candidates for study was based upon their location (i.e., adjacent to Navy and Marine Corps training centers), evidence of accreditation, and the relevance of course offerings to designated Navy and Marine Corps skills.

The method of investigation consisted of on-site visits to the selected institutions by one or more members of the project team, followed by analysis of the raw data obtained. Results of this process are expressed in charts and summaries provided in appendix C.

The initial survey of each school included an extensive review of training offered, to determine whether the curricula and facilities were appropriate to meet the needs of the Navy or Marine Corps. To assure some measure of competency, all VOTEC institutions were required to be accredited by a recognized accrediting agency. The basic accreditation agency for public institutions is any of the regional branches of the Association of Schools and Colleges. Private schools were considered accredited when qualifying for membership in the National Association of Trade and Technical Schools (NATTS), an accrediting agency recognized by the Department of Health, Education, and Welfare.

Visits were made to the Navy and Marine Corps Schools in order to study and compare in detail the management, facilities, methodology, and course content of the selected skills training. Instructonal materials, student flow data, equipment lists, cost data, and details of current course revisions were collected for study.

TRAINING ECONOMICS. Training economics was recognized early as a key issue in determining the feasibility of commercial contract training. In order to arrive at the determination, economic feasibility had to be established through comparison of the true cost of training programs conducted by the Navy, industry, and educational institutions. Through early economic analysis efforts, it was established that a standard means of comparing the true training costs of different training activities had not been developed. Therefore, study procedures had to be established for the development of a training cost model to enable the determination of the true cost of Navy and commercial training.

Development of the training cost model dictated that study procedures be developed that would permit efficient collection of data on training costs, costing techniques, cost effectiveness, system analysis relevant to training cost considerations and cost benefit applications used by the Government and by commercial sources. Literature searches were conducted, visits made, and analyses performed. To aid in this effort, data collection forms were developed and used during all data collection visits.

Sufficient data were collected to develop the training cost model discussed in TAEG Report 13-1. This model is unique in that it may be used by any training activity (i.e., Navy, Marine Corps, industry, and educational institutions) to determine and compare true training costs. It was refined and validated during the Phase II portion of the study and is the basis for the findings and conclusions presented in this report relevant to training economics.

MANAGEMENT AND ADMINISTRATION. While the concept of basic skill commercial contract training might well be both cost and training effective, this can only be accomplished by realistic management and administrative techniques. For this reason an analysis was made of Navy, Marine Corps, corporations, and nonfederal post-secondary schools management and administrative procedures. The rationale for such an analysis was to insure that military basic skill training requirements could be incorporated into the commercial system. Further, it was essential that the application of the VOTEC program be compatible with the present management and administrative structure of the Navy and Marine Corps. TAEG Report 13-1 provides an understanding of the managerial training concepts being applied by large industrial organizations. It was determined that large corporations are faced with many of the same basic training problems that are found in the Navy and Marine Corps. Industrial training of new hire and seasonal employees is most complex and is compounded due to such external factors as costs, advancement in technology, changes in policy and mission, legal constraints, retirement and separation. Based on the Phase I observations of the industrial training management, TAEG Technical Memorandum 75-1 was developed to report trends in corporate training management. The basic managerial and administrative data determined in Phase I were modified to provide a realistic implementation of the VOTEC program using commercial sources.

CONTRACTUAL. Phase I investigated various types of training contracts initiated by the Army, Navy, and Air Force under the ASPR. This was considered essential since the ASPR sets forth the policies, procedures, and regulations for all contracts between the DoD and commercial sources.

In addition, the analysis included discussions with Navy procurement specialists, industry contracting representatives, public and private school administrators.

In conjunction with the ASPR analyses, the Phase I study recommended that MIL-STD-1379A, Contract Training Programs not be applied for the commercial contract training proposed program addressed in this report. It was determined that using MIL-STD-1379A would not be cost effective and would be difficult for private and public vocational schools to administer. Therefore, a specific general basic skill specification was recommended for development.

PHASE II DEVELOPMENT OF COMMERCIAL CONTRACT TRAINING TECHNIQUES

Phase I data provided a solid foundation upon which the Phase II study objectives to develop techniques for implementing the commercial contract training concept could be pursued. Based primarily on economic considerations, the decision was made to concentrate on VOTEC training institutions for the desired skill training. The application of the Phase I data to the Phase II objective required modification of previous study procedures and also the resolution of many related considerations that would impact significantly upon the final implementation plan, procedures, and recommendations. These considerations are summarized in table 3.

TABLE 3. PHASE II CONCEPT IMPLEMENTATION CONSIDERATIONS

PROGRAM MANAGEMENT

PROGRAM ADMINISTRATION

CONTRACTUAL TECHNIQUES

PROGRAM CONTROL

PROGRAM FUNDING

TRAINING COSTS

TRAINING SOURCE SELECTION

SKILL SELECTION

RESERVE TRAINING

MOBILIZATION PLANNING

PEAK LOAD TRAINING

INTERSERVICE TRAINING

MILITARY ENVIRONMENT

LOW VOLUME TRAINING REQUIREMENTS

MILITARY/CIVILIAN COMMUNITY RELATIONS

TRAINING CERTIFICATION

UNIQUE MILITARY SKILL TRAINING REQUIREMENTS

In view of the decision to concentrate on VOTEC institutions, and because Phase I data were adequate, only limited attention was devoted to acquiring industrial data during Phase II. Additional VOTEC institution data, however, were required to support the Marine Corps requirement and for resolution of the considerations set forth in table 3. Furthermore, the economic issues required substantial data in order to permit valid comparison of military and civilian training costs.

The basic study procedures used in Phase I were modified as necessary and used to acquire required data through visits to VOTEC institutions and Navy activities. Visits were also made to various state offices responsible for VOTEC training in the states of interest to this study. Data obtained from these visits and through review of published reports were used to evaluate skills for VOTEC training and to develop implementation procedures and final study recommendations. The study forms used in obtaining these data are presented in appendix A.

A major portion of the visits were to military headquarters and field activities. This not only enabled collection of the required economic and skill data but also provided firsthand knowledge of existing command structures, training management, field training needs and problem areas, skill utilization of trained enlisted personnel, mobilization training issues, and reserve training. These data proved invaluable in developing final concepts for implementation of VOTEC training. These concepts were discussed with appropriate Navy, Marine Corps, and civilian authorities.

SECTION III

STUDY FINDINGS AND CONCLUSIONS

This section of the report presents the Phase II study findings and conclusions relating to the major issues concerned with implementation of commercial contract training programs. These issues include current DoD training processes and training doctrine, mobilization and reserve training, contract training alternatives, economic and contractual considerations, administration and management techniques, source selection criteria, and training certification. Also included in this section are the findings of the selected Navy skill analysis and comparative training capability analysis.

The findings and conclusions addressed in this section are the basis of the "Proposed Contract Training Implementation Plan" presented in section IV and the "Area VOTEC Support Center Guidelines" included as Part II of this report. Emphasis is placed upon supporting data relevant to the major study findings, rationale for the conclusions developed from these findings, and the significance and impact of these findings and conclusions on the development of procedures for applying the commercial contract training concept to supplement certain Navy training programs.

CURRENT DOD TRAINING PROCESSES AND TRAINING DOCTRINE

The training doctrine and processes of the DoD have undergone significant changes in recent years. These changes are reflected in the current attitude toward training, training philosophy, and training techniques. The reasons for these recent changes are many and complex; however, two major ones appear to be the recognition by top DoD management officials that training costs represent a significant percentage of the Defense budget and that, during peacetime, each of the armed services assumes a purely training and planning mission. This latter reason is even more significant in view of the fact that approximately 50 percent of the Defense budget goes for manpower costs, which includes training as well as active duty pay and retirement.

The armed services have traditionally borne the responsibility for training their own personnel in the skills required to support their respective missions. Although various approaches are being explored, such as the concept set forth in this study, this tradition remains basically unchanged. Exceptions to this have been in the areas of factory training programs for new weapon systems and special training requirements. The fact that concepts such as commercial contract training are being explored is indicative of the gradual changes in attitude and philosophy taking place within the armed services.

The Navy, for example, is actively exploring many dynamic training and training related issues, which if proven feasible, have the potential of effecting needed stimulating changes to the Navy training processes. Representative of the progressive concepts being investigated, and in some cases implemented, are:

1. NEOCS - A program to drastically revise and improve the Navy's enlisted classification system for skilled personnel in the 1970's and 1980's.

2. Interservice Training - The Navy is participating in plans to establish interservice skill training programs where feasible.

3. Serviceman's Opportunity Program - DoD-wide program instituted in July 1973 which affords all active duty personnel the opportunity to acquire free education through DoD contractual arrangements with over 1000 high schools, two-year community colleges, and four-year universities located throughout the 50 states.

4. Direct Procurement Petty Officers (DPPO) Program - Trial program to obtain qualified Petty Officers through pre-service civilian conducted "ET" rate training program.

These are but a few of the progressive training concepts being explored by various elements of the DoD, including the Navy. Others include application of task analysis, advanced instructional techniques and equipment, and innovative training management systems. Findings indicate that such progressive inquiry was badly needed by all elements of the DoD and should be encouraged and supported by all levels of management. Progressive training concepts, if properly developed, structured, and administered can have far-reaching beneficial impact upon many issues of major concern to today's armed services. A few of these issues include:

1. Recruiting and Reenlistment

2. Motivation

3. Training Costs

4. Morale

5. Manpower Management

6. All Volunteer Force

7. Personnel

These issues are addressed in greater detail in subsequent discussions in this report. Their impact upon the major objectives of this study and upon current DoD training processes and training doctrine is significant. As previously indicated, the DoD training processes and doctrine are undergoing significant changes which should be encouraged. As stated by Dr. Eli Ginzberg during his presentation to the Industrial College of the Armed Forces on 24 September 1971, "... one of the most serious defects in the management of Defense manpower is the failure to make the radical changes in policy that are needed to make full use of people's capability and open up opportunities for career advancement." Such radical changes appear to be taking place in DoD training processes and training doctrine.

MOBILIZATION AND RESERVE TRAINING

Application of commercial contract training to Navy Reserve programs and to mobilization planning was not the original consideration of this study. Attention was drawn to these issues primarily as a result of the interest expressed by various Marine Corps active duty and reserve organizations. For this reason, these issues were emphasized more in the Marine study than in this study; however, the conclusions reached are equally applicable to Navy Reserve programs and mobilization planning.

Analysis of the VOTEC program instituted by the 4th Marine Division, FMF, USMCR, to satisfy existing needs for hard skill Military Occupational Specialties (MOS) training utilizing civilian VOTEC institutions proved the utility of the approach for Reserve training. Findings indicated this method of training to be an economical and effective technique for promoting individual proficiency in a variety of hard skill areas. The average cost was $1.49 per student course hour (based on 30 courses averaging 145 hours) which is significantly less than that of industrial organizations and most in-house Navy programs. Detailed information relevant to program costs is presented in subsequent sections of this report and in appendix F.

It is the conclusion of this study that the Navy should seriously consider establishing programs with civilian VOTEC institutions to supplement existing Reserve training programs for NEC qualification and refresher training. The proposed CNET Instruction, included as appendix G, sets forth procedures for implementing such programs for active duty personnel and is readily adaptable to Reserve training requirements. Part II of this report provides detailed guidelines for the implementation, control and management of the VOTEC program. Benefits to be gained by using civilian VOTEC institutions to supplement Navy Reserve training include:

1. Provide high caliber training resource for NEC qualification and refresher training

2. Reduce reservist training demand on Navy NEC qualifying schools

3. Provide cost-effective training

4. Increase Fleet combat readiness

5. Reduce Fleet training support requirements

6. Reduce qualified NEC instructor problems

7. Provide reenlistment incentive

8. Increase individual motivation and morale.

Mobilization planning documents reviewed during this study refer to a limited number of universities, trade schools, and industrial organizations as training sources during time of mobilization. No reference is made to VOTEC institutions. As with reserve training, these VOTEC institutions should be seriously considered in mobilization planning. These institutions can rapidly and effectively respond to critical training needs, in a number of hard core NEC skill areas, in time of mobilization. Furthermore, existing curricula may be modified and/or new curricula developed to satisfy special NEC training requirements. Utilization of these institutions would:

1. Significantly reduce the training load imposed upon Navy NEC qualification schools

2. Free combat ready personnel for action

3. Increase Fleet capability to respond to an emergency.

Though not recommended for reserve training because of cost effectiveness considerations, nondefense oriented industrial activities represent excellent training sources during mobilization and should be emphasized more in mobilization plans. Industry as a whole, has the capability to provide training in practically every skill area, including advanced training for Navy systems. The merits of using VOTEC institutions during mobilization apply equally to industry.

CONTRACT TRAINING ALTERNATIVES

Three commercial contract training alternatives were examined during this phase of the study. They were:

1. Skill training through contract with Industrial Organizations

2. Skill training through contract with Private Training Institutions

3. Skill training through contract with Public VOTEC Training Institutions.

From a pure training capability viewpoint, any one of these alternatives could be used to acquire training in selected Navy skills; however, other issues had to be examined in order to determine the best alternative in terms of total effectiveness and utility to the Navy. Regardless of the alternative chosen, there will always be the requirement to evaluate training sources on a case-by-case basis using criteria appropriate for the specific training requirement.

The key issues examined in the evaluation of these alternatives were training cost, training effectiveness, administration, and location. Other issues, unique to certain alternatives, were also examined and in many instances required a value judgment in order to arrive at a final decision. All of the issues examined, and their impact upon the commercial contract training concept, are addressed in the separate discussions which follow.

INDUSTRY. The industrial complex possesses, in terms of number of different skill training programs, a greater training capability than any of the other alternatives considered. This conclusion is supported by the data presented in TAEG Report 13-1 and by the results of the "Industry Training Capability Analysis" presented in appendix B. This analysis is based on the data acquired from the industry sources identified in table 4 and does not begin to indicate the total training resources of industry. For the purposes of this study, however, the sample was sufficiently large to provide meaningful data.

Although the total training capability of industry is sufficient to meet many of the Navy's basic, advanced, and special training needs, there are various factors which reduce the overall utility of this alternative for commercial contract training. One of the most serious factors is the cost of procuring training services from industrial sources. The cost, to the Navy, of procuring basic skill training from industry is considerably higher than procuring the same training from public VOTEC institutions and in many instances higher than private training institutions. Industrial training costs, discussed in detail under "Economic Considerations" presented later in this section, are higher due to the profit, overhead, and General and Administrative (G&A) charges which are normally greater than those of private institutions and practically nonexistent for the Federal and state supported public institutions.

TABLE 4. INDUSTRY SOURCES CONTACTED

American Airlines
American Telephone & Telegraph
Boeing Company
Coca Cola Company, USA
Control Data Institute
Delta Airlines, Inc.
Eastern Airlines, Inc.
Flight Safety, Inc.
Florida Gas Company
Florida Power Corporation
Ford Motor Company
General Electric Company
Goodyear Tire & Rubber Company
General Motors Corporation
Grumman Aerospace Corporation
International Business Machines
Eastman Kodak Company
McDonnell Douglas Corporation
Martin-Marietta Corporation
RCA Service Company
Singer
Sperry Rand
Southern Bell
Texas Instruments, Inc.
Trans-World Airlines, Inc.
United Airlines
Virginia Central Industries
Westinghouse Electric
Western Electric
Xerox

Location of facilities is another factor which reduces the attractiveness of the industry alternative. Generally speaking, industrial organizations possessing required training programs are not located near major Naval installations. This is a distinct disadvantage since travel to distant locations would significantly increase total training costs through the expenditure of monies for travel, messing, and berthing. Furthermore, the student would be removed completely from the Navy environment, considered an undesirable situation, and overall administrative problems would be increased.

Industry training programs are normally designed to meet company and/or Government established standards. Although industry will design training programs to meet specific Navy requirements, these programs, and existing programs, would not normally be accredited as would those of accredited public and private training institutions. Accreditation could probably be obtained for industry training programs, but this would be a costly and time-consuming process where the benefits obtained would be questionable in terms of effort and money expended.

From a purely contractual viewpoint, industry training programs would, at least initially, be less difficult to initiate and administer because most industrial organizations are familiar with DoD contracting procedures. Generally speaking, public and private training institutions are not familiar with these procedures and would therefore require a certain amount of education.

The majority of industrial organizations contacted during this study indicated a desire to conduct and, if necessary, design programs for Navy basic skill training. The previously discussed disadvantages of using industry for this type of training are sufficient to eliminate this alternative for commercial contract training. This conclusion, however, does not preclude the utilization of this vast training resource to supplement other Navy training programs. For example, the industrial complex is better equipped than public and private training institutions to support training programs in unique skills, such as cable splicing and weapon systems. Furthermore, nondefense industrial organizations are well equipped to support mobilization training requirements and may also be used to effectively support the training requirements of individual Navy Reserve units where public or private training institutions are not readily available.

To take full advantage of the training capability of the industrial complex for mobilization, reserve, and special training situations, it is necessary to develop a complete training capability file that includes a large cross section of the complex. This file would enable the Navy to rapidly draw upon the appropriate industrial organization(s) to satisfy their special training requirements.

PRIVATE TRAINING INSTITUTIONS. Private training institutions are rightfully classified as part of the industrial complex, for like the other industrial organizations included in this study, they operate on a profit-making basis. Relevant to the objectives of this study, private training institutions have one major distinction which sets them apart from the remainder of the industrial complex and which impacts upon the evaluation of this alternative for contract training. This distinction is due to the fact that training is the only product offered by private training institutions, whereas with the majority of industrial organizations, training is a necessary function in support of a primary product or, in some cases, offered to other clients but as a secondary product of the organization.

Becaush training is the only product offered by private training institutions, the cost of their training programs to the Navy would normally be less than like programs provided by other organizations of the industrial complex. This is primarily due to the fact that the G&A, overhead, and burden costs are less for these institutions. The cost of private training institution courses is still considerably higher than the cost offered by public training institutions which are supported by Federal, state, and local funds and do not operate on a profit-making basis.

The private training institutions included in this study were those involved with trade and technical training programs. Although an in-depth analysis was not conducted for these institutions, sufficient data were obtained from published literature to permit a meaningful assessment of training capability (refer to appendix C). The overall capability, measured in terms of different programs offered, is impressive and could be used to satisfy many of the Navy's basic skill training requirements. Furthermore, existing programs are more compatible with Navy skill training programs than those of existing industry programs which are often oriented to specific product lines. Unfortunately, many of these institutions limit their programs to several specific occupational areas; i.e., aircraft, automotive, and retail, and do not individually offer the complete occupational selection available in most public training institutions.

Location is not as serious a problem with private training institutions as it is with industry. Findings indicate that there are many institutions located within reasonable commuting distances of some of the Naval installations included in this study. Howhver, programs offered by these institutions may be limited to specific skills, as previously discussed, which may or may not be the skills of interest to the Navy.

There is no reason to believe that contractual training programs with private training institutions, located near Naval installations, would be difficult to administer if properly implemented. Techniques for implementing such programs are discussed in Part II of this report. There are certain administrative considerations unique to contract training programs that have to be resolved; however, these considerations are equally applicable to all of the alternatives investigated. These administrative considerations are discussed later in this section.

In the case of private training institutions, accreditation is a voluntary matter and the individual school must apply on its own initiative. This subject is addressed in TAEG Report 13-1. Over 350 private trade and technical institutions have been accredited by the NATTS. Although accreditation does not guarantee quality training, it is generally considered to be the most authoritative index of a school's standing within its own profession and within the national and world communities. Navy personnel attending private institutions could benefit by receiving accredited training. Furthermore, most accredited private institutions provide training certification which is recognized by most unions, industrial organizations, and institutions of higher learning.

As with industrial organizations, most private training institutions are receptive to training Navy personnel under contract. Although these institutions have several advantages over industry, the cost of training is sufficiently greater than the cost of comparable training offered by public training institutions to eliminate this alternative for commercial contract training. Furthermore, the relatively limited programs of individual institutions pose unnecessary limitations on the concept of commercial contract training. Private training institutions should, however, be included in mobilization planning and can be utilized to support the training requirements of many Navy reserve units where public institutions are not available. The effectiveness of using such institutions to support reserve training has been demonstrated by the Marine Corps Reserve VOTEC program. Data representing the cost effectiveness of this program are provided in appendix F.

PUBLIC VOTEC TRAINING INSTITUTIONS. Of the three commercial contract training alternatives evaluated, public VOTEC training institutions offer the most advantages to the Navy, with none of the previously discussed disadvantages of industry or private training institutions. These institutions represent an impressive training resource which has been virtually overlooked by the Navy for basic skill training. They offer a wide selection of basic and advanced skill training programs representing a multitude of occupational skills. These programs are generally available at the majority of public vocational institutions and satisfy many of the basic training requirements for Navy skills. The training programs of institutions near Navy installations of interest to this study are discussed in detail in appendix C. Specific institutions contacted are included in table 5.

TABLE 5. INSTITUTIONS CONTACTED

Albany Area Vocational/Technical School (GA)
Atlanta Area Technical School (GA)
Augusta Area Technical School (GA)
Beaufort Technical Education Center (SC)
Chapman College (CA)
Chesapeake College (VA)
Coastal Carolina Community College (NC)
College of Lake County (IL)
Craven Technical Institute(NC)
East Central Junior College (MS)
Fairfax County Public Schools (VA)
Florida Technological University (FL)
Florida Junior College at Jacksonville (FL)
Gateway Technical Institute (WI)
George Stone Vocational Technical Center (FL)
George Washington University (Washington, DC)
Grossmont College (CA)
Harper Community College (IL)
Honolulu Community College (HI)
John Stennis Vocational Center (MS)
Kapiolani Community College (HI)
Leeward Community College (HI)
Lenoir Community College (NC)
Lynchburg Vocational School (VA)
Macon Vocational Technical Institute (GA)
McHenry Community College (IL)
Memphis Area Vocational Technical School (TN)
Meridian Junior College (MS)
Meridian Separate School (MS)
Mid-Florida Technological Institute (FL)
Miracosta College (CA)
916 Vocational Technical Institute (White Bear Lake, MN)
Norfolk Technical Vocational Center (VA)
Norfolk State College (VA)
North Georgia Technical & Vocational School (GA)
Northern Virginia Community College (VA)
Nova University (FL)
Oakland Community College (MI)
Oakton Community College (IL)
Old Dominion University (VA)
Palomar College (CA)
Pensacola Junior College (FL)
Pinellas Vocational Technical Institute (FL)
Racine Technical Institute (WI)
Rollins College (FL)

TABLE 5. INSTITUTIONS CONTACTED (continued)

Saddleback College (CA)
San Diego City College (CA)
San Diego Evening College (CA)
San Diego Mesa College (CA)
Seminole Junior College (FL)
Southwestern College
State Technical Institute at Memphis (TN)
Thomas Nelson Community College (VA)
Tidewater Community College (VA)
Trident Technical College (SC)
Triton College (IL)
University of South Florida (FL)
University of Northern Colorado (CO)
University of Hawaii (HI)
University of Virginia (VA)
Valencia Junior College (FL)
Virginia Beach Vocational Technical Center (VA)
Virginia Wesleyan College (VA)
Walworth Technical Institute (WI)
Wayne Community College (NC)
Western Wisconsin Technical Institute (WI)
Windward Community College (WI)
Wymore Vocational Technical Center (FL)

There are over 2500 accredited public VOTEC institutions in the United States and this number has been increasing at the rate of 125 per year. There is at least one of these institutions located near every Navy installation included in this study. Of interest, is the fact that a few of these institutions have housing facilities, a capability that the industrial organizations and private training institutions studied did not have. Furthermore, the majority of public institutions have cafeterias which charge nominal rates for meals.

The cost per student instruction hour at public VOTEC institutions is approximately $1.50, considerably less than comparable costs of either industry or private institutions. These costs are addressed in the "Economic Analysis" discussion presented later in this section and also in appendix F. The comparatively low cost of public VOTEC institution training is attributed to the funding support provided by Federal, state, and local governments and the nonprofit basis on which these institutions operate.

Most public VOTEC institutions have limited experience in dealing with the administrative and contractual aspects of DoD-sponsored programs. For this reason, these institutions would require a certain amount of time to become familiar with DoD procedures. This issue was discussed with various state officials and determined to be a minor problem that would be easily eliminated through experience. Various administrative considerations peculiar to the concept of commercial contract training are addressed later in this section and in Part II of this report.

Public VOTEC institutions exist to serve the training needs of the community (refer to TAEG Report 13-1). For this reason, care must be taken to avoid overloading an institution with Navy students and possibly denying civilians the opportunity of receiving training. Such a situation could have a significant adverse impact upon the military-civilian community relationship.

The advantages associated with accreditation would be available to Navy students attending public VOTEC institutions as these institutions are all accredited. This insures not only quality training but provides a positive incentive for students to continue their education and to reenlist in the Navy.

Based on the study findings previously discussed, it is concluded that public VOTEC institutions are the best commercial source for training Navy enlisted personnel in selected skills. These institutions offer quality training in a wide variety of occupational skills, are cost effective, and pose no unusual program administration problems. Furthermore, these institutions have indicated a desire to train Navy personnel and will tailor programs to meet specific Navy requirements. Public VOTEC institutions are an ideal source for Navy reserve training and should likewise be included in Navy mobilization planning. The proposed contract training implementation plan presented in section IV is based on using public VOTEC institutions. Part II of this report is also based on the utilization of these institutions.

ECONOMIC ANALYSIS

The objective of this subsection of the study was to ascertain the feasibility of utilizing commercial sources of VOTEC training for initial basic skill qualification of enlisted personnel for the Navy and Marine Corps. Certain constraints imposed by the ASPR which preclude pre-contract negotiation on planned programs coupled with the reluctance of contractors to give firm prices for specific courses of instruction under such conditions inhibited the gathering of precise cost data from commercial sources. Sufficient data were obtained, however, to enable valid comparisons to be made with historical data and available data from intermittent VOTEC efforts conducted by the Armed Forces during the past five years. Of particular significance were the data provided by the ongoing VOTEC training program of the 4th Marine Division.

THE PLANNING PERIOD. A decision to utilize civilian sources for military training must be based upon an analysis of both long-run and short-run effects. Given administrative flexibility for decision making, the degree to which training resources can be redirected depends to a large extent on the operational and/or planning period. The longer the period, the greater the flexibility.

At any point in time, decisions which involve the utilization of resources must deal with the fact that some will be subject to manipulation while others, by their nature, must remain fixed. The operational decisions which training managers make are essentially decisions of how most effectively to combine the variable resources with the fixed resources to meet the training goals. The planning decisions involve how best to adjust--in the long run--the fixed resources to attain long-term efficiency.

Long-run planning commitments made in the present effectively place limits on the operational options that will be available in future periods. For this reason, decisions to undertake certain investment options may well depend on the degree of flexibility necessary for future periods. This, in turn, is fundamentally related to the degree of uncertainty involved in the decision.

Given the necessary administrative authority, in the long-run, all resources are theoretically variable; i.e., all resources can be utilized in whatever manner planners choose. Since complete flexibility prevails, the costs of all resources are relevant. Consequently, in comparing civilian to military alternatives for planning purposes, all costs need to be included.

All conditions being equal, whether training is done by the military or nonmilitary, there is no apparent reason why total long-term training costs should differ. If both the military and civilian institutions use the same resources to train the same numbers to the same skill levels, then costs should not differ significantly.

When making comparisons of military programs with civilian programs, all conditions are seldom equal. The extent to which there exist differences in programs, there exists the potential for cost differentials. Therefore, it is problematical to make long-run planning decisions on the basis of cost differentials between existing military and civilian programs.

If all costs and benefits of both military and civilian alternatives could be quantified and considered in an economic analysis, then cost minimization (or benefit maximization) would be both necessary and sufficient criteria for selection among alternatives. Obviously, quantification cannot be carried to this extreme. There are many intangibles which defy quantification. For example, to what extent can the permanence of such arrangements be assured? Can the civilian training capability be responsive to changing requirements dictated by technological changes and mobilization requirements? Are the specialized requirements available in civilian facilities and are they consistent with military requirements? These and a host of other questions which are specific to each skill area must be recognized and addressed. These intangibles, when considered, may at times be the determining factor in the choice of alternatives. When neither the military nor civilian alternatives can be shown to have an advantage in efficiency, then the decision must be based on the nonquantifiable factors.

THE OPERATIONAL PERIOD. Just as future operational options will be limited by the present planning decisions, the present operational options were set by past planning decisions. Because of uncertainty, technological limitations, and imperfect planning decisions made in the past, most training systems will not be optimally designed in terms of long-run efficiency. Furthermore, because the expected loss or failure to meet training requirements is undoubtably greater than that of acquiring and maintaining surplus capacity, one can expect to find surplus capacity existing in many training systems--both military and civilian.

The utilization of this surplus capacity in civilian institutions represents a significant opportunity for cost savings for military training. The potential dollar value of these savings depends upon a summation of savings from individual skill areas and cannot be estimated with any significant reliability without an analysis of each skill area.

OPPORTUNITIES FOR EFFICIENCY IMPROVEMENTS. If the total training in numbers and proficiency levels is to be maintained, then reductions in total training costs can be achieved through improvements in managerial practices, advances, and adoption of more efficient educational technology, scale economies, or reduction in the cost of resources used.

The largest payoffs in absolute terms will come from improvements in those skill areas where the greatest absolute expenditures occur. Often, relatively minor changes in techniques in these skill areas can effectuate substantial benefits. Unfortunately, these are also the skill areas where there appears to be little opportunity, using existing sources, to implement civilian programs.

An analysis of data and opportunities suggests that the greatest potential for savings occurs by mixing military and civilian programs because of scale economies. Although the possibility for large savings in any one skill area is thus attenuated, there are many such skill areas and, in total, may represent significant potential for savings.

RESOURCE COSTS. The decision to utilize either military or nonmilitary training will depend, primarily, on their relative costs. There are two central questions which must be addressed for each skill area. First, which resources are relevant to the decision, and second, what value (or cost) must be placed on those resources.

The relevant resources are determined by the time frame of the decision and the administrative level at which such decisions are made. The higher the administrative level, the more latitude the decision maker is likely to have in determining alternative resource use. What, therefore, may be considered a relevant cost at high administrative levels may be a fixed resource at lower levels. Working within the administrative constraints, one can determine which resources are amenable to control and manipulation.

The time dimension of analysis is the second determinate of relevant resources. Only those resources which can be diverted to alternative uses over the analytical period are properly counted costs. For example, a manager of a training system may determine, through analysis, that considerable savings could be realized by using nonmilitary sources, but to realize the savings would require the liquidation of military facilities used in the existing program. If it is not within his jurisdiction to make the decision to liquidate, and it is obvious that such decisions to liquidate would involve a time lag extending beyond the period for which the operational decision was being made, then such savings are unrealistic and should not be counted in evaluating the alternative. The facilities actually have zero opportunity costs and become a "free" resource for the evaluation of that particular military alternative.

The value placed on relevant resources must be defined in terms of opportunities foregone. This concept of costs presents no particular difficulty for those resources to be acquired. In a market economy, the resource prices are usually a reflection of their value in alternative use and using acquisition cost as a basis for resource allocation will lead to efficient solutions.

Difficulties do, however, arise in determining the opportunity costs of resources already owned and which make up the large capital stocks of investments supporting the alternatives. The identification and evaluation of alternative uses can be one of the most difficult aspects of economic analysis. The correct cost of stock resources is their potential worth in their most "lucrative" alternative use. Often, poor or no alternatives exist for the use of owned resources and the opportunity cost of using these resources to fulfill mission objectives is negligible.

SCALE ECONOMIES. Scale economies occur when average costs of training are reduced as a function of the numbers trained. While certain scale economies may be realized by implementing particular management policies within a training system, others can occur only with changes in output levels. Since most training commands have limited opportunities to control demand for numbers trained, they have minimal opportunity to realize scale economies by making internal changes.

The combination of duplicate training facilities, more intensive use of existing facilities, or combining of military and civilian training all represent ways in which scale economies can be realized. The recent interservice training effort is justified primarily on the basis of scale economies. If any long-run savings are to be realized by combining the civilian and military training effort of particular skill areas, then in large measure these savings can likely be attributed to scale economies.

Scale economies arise from (1) technology factors and (2) specialization. As the scale of operation increases, there is a greater opportunity to bring together a wider range of technological innovations and mesh them into a viable and efficient training system. Often, the capacities of particular innovations must be acquired in discrete blocks. For example, it is not feasible to develop a CAI system for one student. When the scale of operations is small, the choice may be limited to acquiring the innovation and have a great deal of excess capacity, or foregoing the utilization of the innovation in favor of those which are less efficient but more adapted to small scale operations. Thus, economies arise because of a better meshing of technology and qualitative changes in technology as scale of operations increases.

Scale economies also arise because of lower average acquisition and implementation costs of facilities and equipment. The costs of implementing a skill training program for 100 students will not be 10 times the cost of implementing for 10 students.

The second major source of scale economies arises from specialization. For example, an instructor who has a sufficient number of trainees in any one skill area to warrant his full-time efforts will become more efficient than one who must share his time among several courses. Large programs can also support specialists in areas such as course material development.

ECONOMIC ANALYSIS. The data from which the following findings are deduced do not represent a sample of all Navy, Marine, or civilian skill training. The observations were selected on the basis of skill areas dictated by the scope of the study. The reader is admonished not to draw inferences about all Navy, Marine, or civilian training from information presented. The objective was to focus attention on those skill areas which, for one reason or another, the training might be more efficiently done at nonmilitary facilities.

Conditions may exist in either a military or commercial training system which render it technically, economically, or politically impractical to implement training which simultaneously captures desired training objectives and cost efficiencies. Emphasis on commercial sources of initial skill qualification training stems from the study mandate to identify a cost-effective program approach and not from any inherent bias toward industry or trade schools. Initial data screening indicated contract training from industry for basic skills training to be the least desirable approach due to economic and political considerations. Private institutions were generally found to be less desirable from a purely economic standpoint than public institutions.

An estimate of the absolute magnitude of cost savings was not attempted. For any realistic estimate of potential cost savings to be made, it is necessary to develop specific training objectives for each skill area and to identify those civilian sources where that training can be technically accomplished. Since civilian basic skill programs may not always have identical training objectives as required by the military, there may be some need to reorganize and redirect some of their resources to develop and implement a program which will satisfy the military training goals. Until specific proposals, including constraints, are presented to these institutions, it is not practical to attempt to determine the comparative costs involved.

Resources devoted to the economic phase of the study were sufficient to permit a visit to and evaluation of each training site. The reliability and completeness of the data collected were a result of the accuracy with which managers completed survey forms. Although most were carefully completed, some lacked detail and completeness to be of significant value. Data were obtained for approximately 50 Navy, Marine, and civilian skills. The training sites of a number of other skill areas were visited and descriptive data obtained. A number of skill areas were not pursued in detail because they were currently undergoing reorganization or redirection.

Because of low enrollments, many Navy and Marine Corps basic courses were relatively expensive. In some instances, low enrollment courses have been cancelled. Examples are Navy Lithographer and Marine Corps Illustrator Draftsman training. The technical requirements of these courses make them ideal candidates for training by civilian VOTEC programs. Again, a final determination must be based on an examination of individual course requirements and the VOTEC institution capability.

Several courses which involved heavy investment in operational equipment also had relatively high average costs of training. Notable examples were the engineer equipment operator and engineer equipment mechanic courses. To single these courses out as examples of high cost courses is not a condemnation of their management. In fact, for these particular courses, there was considerable evidence of use of a number of innovative ideas and in-house developed training devices. These undoubtably contributed to more efficient utilization of the training resources. The costs were high for reasons beyond the operational manager's control. If the managers are constrained to training a few operators on operational equipment, then there are few internal management adjustments which can be made to significantly improve efficiency or reduce training costs. Alternative solutions must be found which capture, where possible, scale economies or which employ more efficient training technology. Civilian institutions may very well offer one solution to these problems. Interservice training is also being considered for the above courses and may prove a more feasible alternative.

It was apparent from visiting numerous nonmilitary facilities that for most skill areas there was excess capacity for low density inputs which could be depended upon to exist for a reasonable length of time. Many administrators indicated a willingness to expand their program if they could be assured that such expansion would not diminish their ability to serve their local clientele. Any long-term contracts which are negotiated with these institutions for high density inputs, however, will have to be done by guaranteeing that, if and when expansion is required to satisfy the local demand for training, the military will have to assume the fully allocated costs of its own training.

The short-term situation, therefore, is substantially different. With few exceptions, administrators were receptive to participating in programs which would be meshed into their own programs. This was especially true for those skill areas in which they had excess capacity.

Not only were administrators eager to have their capacity utilized but most indicated that the cost of military participation would be rather nominal.

In every civilian institution visited, there were skill areas for which there existed the capability to develop and implement courses which would fulfill specific military training requirements. Every school did not have the technical capability or capacity to train in every skill area, but in a cross section of civilian schools visited, most skill areas were covered.

The implication is that, for both the present and future, many opportunities to utilize VOTEC institutions for military training will be available. If the military will adopt a management policy which will emphasize and permit flexibility at the operational level, there is considerable evidence to indicate that a good deal of military training can be acquired at very nominal costs. This flexibility will require that contract procedures, technical specifications, and implementation authority and procedures are readily available which will facilitate functional management's use of these VOTEC institutions as the need and opportunity arise.

The Marine Corps Reserves have recently obtained VOTEC training in 25 civilian institutions. More than 40 courses were taught in these institutions and the average weighted contract cost was $1.49 per student instructional hour. Nearly half of this instruction was acquired for a contract cost of less than $1.00 per hour. These courses were relatively short-term commitments--an average of 110 hours per course. Average military enrollment was 13 students per course. Such is typical of the magnitude of costs involved for the short-term low enrollment courses.

A majority of the civilian VOTEC schools received heavy public support. The tuition and fees charged their students did not cover all their costs. For the military to participate in those programs on a long-term basis at charges commensurate with costs levied on the civilian students, it will be necessary that these vocational schools continue to receive their subsidies in analogous proportions to that currently received. Most of this current support comes from local and state sources.

Private VOTEC institutions involved in training are usually highly cognizant of their long-term costs and will attempt to price their training at a level which will cover these costs. Any civilian institution which must derive its total support from its own output will seldom engage in any long-term training contracts for which total costs are not covered. The military may at times be able to obtain training from these institutions at costs which are less than their true long-run costs; however, a profit-making institution which is in a position of having to price its training at less than average costs will immediately engage in the type of planning which will result in a profit situation. Although the military may be able to obtain short-term/low-cost contracts from private institutions, they will not be able to obtain long-range contracts which extend beyond the time necessary for these institutions to adjust their capacity to that level which permits a fair long-run return to invested capital.

MANAGEMENT AND ADMINISTRATION

The administrative structure of the VOTEC program is four tier. The design calls for first level centralized management of policy and funding at the Chief of Naval Education and Training with second level implementation management at the Chief of Naval Education and Training Support. Co-located at recruit training sites and selected technical training centers are level three AVSCs providing user services within their geographic areas of responsibility to the level four Fleet training and operational commands requiring basic skills training via the VOTEC program.

Area VOTEC Support Centers have purposely been proposed at major installations where existing support in the form of training and contracting personnel is available, thus allowing maximum access to Navy units while at the same time reducing implementation impact. The AVSC provides interface with these units and VOTEC institutions acting as an advisory, contracting, and monitoring service agency to ensure quality contract training. Professional consideration indicates that a minimum of one qualified education specialist of a civil service rate allowing long-range program continuity should be considered. The relatively short-tour military assignment system does not promote this vital element. Other AVSC staff should be military available on a part- or full-time basis.

In most cases, training needs are first apparent at the Fleet level. The heart of the VOTEC program is directed toward providing NEC qualified personnel at this level. Unit commanders, therefore, will be tasked with defining and initiating VOTEC training requests via command approval channels to the AVSC for implementation. Consideration should be given to a minimal approval chain to ensure a responsive VOTEC program. In addition, the unit training staff will be required to (1) provide active assistance to the AVSC during the contract definition phase of the training project, (2) assist in monitoring the training, and (3) submit reports of training completed. Formal communication procedures between separate command elements involved should be minimized during this phase of the VOTEC training process to enhance accomplishment of training.

Overall, the administration of the program is straightforward, yet it requires uncluttered lines of communication to and from the AVSC where major actions to provide training occur between the unit, AVSC, and VOTEC institutions. A primary administrative consideration to effect a smooth running program will be the determination of the lowest appropriate command level for control and disbursement of VOTEC funds to support contractual actions associated with the VOTEC program.

CONTRACTUAL CONSIDERATIONS

The need for VOTEC type training in the Fleet manifests itself in a variety of situations, at various locations and in numerous configurations. The basic concept of VOTEC evolved from the notion that there may be a better or more efficient method of obtaining acceptable NEC basic skill training or partial NEC certification used in conjunction with on-the-job training programs at cost ratios comparable to or less than present methods used.

It is not the intent of VOTEC training to degrade the use of formal service or interservice school systems already in existence. Rather, it is intended to supplement the existing systems with a practical approach to eliminating voids within the present system that result in day-to-day operational problems for units in the Fleet that historically have had to function with less than the optimally trained man. For some basic skills there are no formal service schools. In other cases, operational requirements necessitate retraining within current job specialties to effectively support the assigned mission. In other instances low student throughputs in certain skill areas make service school training infeasible from the cost standpoint alone. The use of available VOTEC training from commercial sources is an answer to the problem.

The VOTEC training schema has been proven a viable procedure to obtain MOS certification in the area of basic skill training for the Marine Corps Reserve. The extension of VOTEC to the regular components of the Navy via AVSCs is feasible and offers opportunity to acquire now available basic skill training to support NEC qualification when and where it is needed.

In the majority of cases contractual effort to support the VOTEC program will be case-by-case efforts based upon a matrix composed of the following elements:

1. Training conducted on station, at VOTEC institutions, or in an industrial environment

2. For complete or partial NEC qualification

3. For single or multiple courses of instruction

4. For individuals or groups of students

5. During specified time frames or in "pipeline" type of training situations

6. For basic or advanced entry level skill training

7. For annual or multiyear training endeavors

8. With regular ongoing curricula, military curricula, or variations thereof

9. With or without messing and/or billeting for students.

Contractual approach is necessarily a prerogative of the individual contracting officer. Of primary importance, regardless of the contractual vehicle used, is a legal ASPR contract. The contracting officer should be included early in the planning discussions for procurement of VOTEC training programs to ensure proper procedures are followed, particularly if sole source selection criteria are anticipated. In most cases, the appropriate contractual vehicle will be a "Negotiated Indefinite Quantity Contract" meeting ASPR 3-409 and 3-608. A "both" party signature approach to procurement of VOTEC services should be followed utilizing Standard Form 26 for the Award/Contract and DD Form 1155 as the vehicle for ordering services against the contract vice the Standard Form 33 "single" signature approach which may appear more appropriate in some instances. Furthermore, each designated AVSC should be provided a VOTEC Guidelines package (refer to TAEG Report 21-2) to assist in conducting the program.

TRAINING SOURCE SELECTION CRITERIA

The process of selection of a source of Naval skill training requires careful consideration of a number of factors.

LOCATION. The VOTEC institution should be within a relatively short distance from Naval installations which have facilities for housing, messing, transportation, and administrative support of student personnel. This would allow the busing of students for training and return to the base at the end of the day's instruction. This arrangement would have the added advantage of maintaining the student in a military environment thus reinforcing indoctrination of the trainee in an early phase of his service. It would be desirable to have the training source within approximately 25 miles of the base.

FACILITIES. A personal inspection should be made to determine the adequacy of facilities for the training desired. Frequent re-inspections may be required because of the expansion of facilities and shifts in use of these training facilities, as well as the effects of technical obsolescence in some areas. Evaluation of facilities should be objective in terms of inventory, space, and quality. It should also be determined just what facilities will be used for Navy students.

PERSONNEL. The number and quality of VOTEC personnel within an institution, both administrative and instructional, should be determined. Requirements for certification of instructors and administrators should normally follow state standards as a minimum. In VOTEC skill areas, considerable background experience in industry, coupled with instructional ability, provide exceptional prerequisites for instructors.

CURRICULUM. The curriculum for NEC training should be precise and well documented and should reflect a need-to-know philosophy. Elements of a systems approach are desirable, to include task analysis and the establishment of specific training and behavioral objectives. Subject matter should be designed to reflect consideration of entry level and practical application of terminal objectives. Revision and updating procedures should be well established, consistent with the technological changes involved.

INSTRUCTIONAL TECHNIQUES. The selection of instructional techniques, in terms of probable success, will vary with the training concerned; however, factors to be considered include:

1. Maximum "hands on" instruction
2. A full range of appropriate training aids
3. Use of self-paced individualized instruction
4. An instructional "mix" appropriate to the subject
5. Maximum use of instructional media.

INSPECTION TEAMS. Institutions under consideration for training participation should be inspected by administrative, instructional, and subject matter specialists from the host AVSC. These teams should insure that facilities and instruction are of a high order, and that training objectives can be met.

CERTIFICATES AND ACADEMIC CREDITS. Analysis should be made to determine the school policy in regard to award of certificates of completion and transferable credits to the students. Such awards tend to strengthen course status and provide increased incentive for Navy students.

TRAINING CERTIFICATION

It is essential that, having selected a source of skill training, the instruction provided will result in the production of an individual fully capable of performing work activities required by his assignment. Furthermore, this work must be accomplished to a degree of excellence compatible with the requirements of the rating. It is necessary, therefore, that standards be established as a basis for certification. These standards will encompass definitization of the elements of instruction considered essential, plus intermediate and terminal performance criteria.

The practice of arranging for instruction and training based upon vague and generalized course titles, such as automotive mechanic or electrician, may be acceptable in circumstances where the student is preparing for occupational qualification for a broad field of job openings. However, in the case of Navy training, the needs are quite specific, although they may encompass a considerable range of activities depending upon the sailor's assignment. Therefore, the principles of "need-to-know" and course compression are best served by the establishment of specific behavioral objectives as the basis for course structure.

Logically, the best source of standards for course certification are the subject matter specialists of the Navy school concerned with the training in each skill area, or if there is no Navy school, those service personnel best technically qualified in the field. The process will require consultation and the writing of specifications prior to contracting of training, observation and revision of instruction during the training, and the certification of performance objectives at completion of training. It will be a continuing process, requiring post-assignment evaluation feedback and subsequent revision as required.

The evaluation of the effectiveness of training is the measure of how well the trainee performs on the job for which he has been trained. The training program is judged effective if the trainee carries out his job proficiently; if he does not, the program must be examined to determine what job tasks are not being adequately taught.

This procedure requires some method of determining trainee effectiveness on the job, with consideration of the relative importance of various elements of the various tasks. A distinction must be made to identify undertraining in important tasks, and overtraining in tasks of lesser importance.[1]

Technical training effectiveness can also be inferred by such measures as how many hours of instruction have been given, the use of various instructional equipment, how many dollars are spent per student, end-of-course questionnaires and examinations. However, these factors have little meaning if the basic goal, on-the-job performance, is not met.

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[1] The subject of determining trainee effectiveness on the job is addressed in TAEG Report 19, A Method for Obtaining Post-Formal Training Feedback: Development and Validation.

Training specialists, who are concerned with cost effectiveness, recognize that trainee evaluation must not be confused with course evaluation. It is quite possible for a trainee to achieve a completely satisfactory understanding of course objectives, but remain incompetent in job performance. Such a situation indicates the lack of consistency that can exist between course objectives and job performance objectives. Realignment of the training course is required in such cases.

The evaluation of training output is essentially the end result of a process which begins with the course design, based upon determination of specific behavioral objectives, with progress tests and work projects evolved from observation of typical job performance by experienced workers. Testing of the trainee's progress is carried out at each phase of training, with final examinations, written and practical, and instructors' evaluations.

A certificate of satisfactory course completion must be submitted by the source in such a form as to reflect the accomplishment of the course objectives. This certification will insure compliance with contractual requirements, and the Navy Program of Instruction.

SELECTED NAVY SKILL ANALYSIS

For the purposes of Phase II of the study, the list of Navy skills to be analyzed was revised and expanded. Primary emphasis was placed upon Lithographer (LI) training at the apprentice level, Yeoman (YN) training at the "C" school level, and Machinery Repairman (MR) training at the "A" school level. In addition, 18 other Navy skill ratings at the "A" school level were considered as possible alternative candidates for contract training. Appendix E presents a detailed overview of the skill ratings included in this study.

Currently the Navy does not offer formal school training in Lithography and Illustrator-Draftsman. During the course of this study, Yeoman "C" training was transferred to the Army Adjutant General School at Ft. Benjamin Harrison, Indiana, as interservice training.

LITHOGRAPHER (LI). The source of personnel for this rating is primarily from recruits possessing prior training or work experience in the field in civilian life. On-the-job training is provided upon assignment to the Fleet. Advanced specialty training in lithography is available to Fleet personnel at the Defense Mapping School, Ft. Belvoir, Virginia.

During the course of this study, several sources indicated concern over the entry level skill qualifications of shipboard lithographers and recommended the resumption of formal basic training.

The Navy Publications and Printing Service Office (NPPSO) expressed interest in reactivating formal lithographer training. The NPPSO Branch Office at NTC Orlando also provided assistance in outlining curriculum requirements. The Defense Mapping Center is likewise capable of providing such training upon request.

Investigation of commercial sources indicates that the most promising approach to alternative training exists in the public VOTEC institution sector. A number of these schools are currently offering comprehensive training in the printing field. Outstanding among these are Triton College, River Grove, Illinois, near NTC Great Lakes and Mid-Florida Technological Institute, Orlando, Florida, near NTC Orlando (see appendix C).

Under current conditions of austerity, it appears more economical to utilize established VOTEC facilities and programs where appropriate training is offered.

YEOMAN (YN) "C" (FLAG OFFICERS' WRITER). This training is a low volume, nontechnical, specialized course designed to prepare experienced senior Yeomem for duty as enlisted aides for officers of flag rank (refer to TAEG Report 13-1).

It was noted that, in some instances, Navy personnel otherwise highly qualified for Yeoman "C" duties are found during training to lack aptitude for shorthand skills. Prior testing for this skill and for typing proficiency may improve the ratio of successful graduates.

Most public VOTEC schools were found to offer excellent training in the principal elements of this rating (typing, shorthand, and English). Private trade schools offer similar training at somewhat higher cost. This training would require the additional elements of Navy-specific information from Navy manuals and associated materials. Under these conditions, public VOTEC schools offer a solution to peak loads or special requirements to supplement present training.

MACHINERY REPAIRMAN (MR). This is a high volume rate requiring extensive facilities and costly training equipment. Current Navy training at the San Diego Training Center is excellent, with well-equipped facilities and a highly qualified instructional staff.

Investigation of alternative commercial sources indicates that industry, private, and public VOTEC schools each possess, to varying degrees, facilities and equipment capable of providing elements of MR training.

This rating, however, does not lend itself as well as other skills training to the use of commercial contract training, due to the high percentage of Navy-specific training requirements. The high volume of student flow is also beyond the capacity of most commercial facilities. Considerable government furnished equipment (GFE) would be required for most contract training situations.

It is suggested that consideration be given to expansion of current Navy MR skill training by adding a second school on the East Coast. This decision would result in a savings of travel expense and time involved in the current practice of sending all trainees to the West Coast.

The applicability of other proposed candidates for skill training is addressed in charts provided in appendices B and C, which list commercial sources providing related training. The likelihood of obtaining these various skills training at public VOTEC institutions is estimated as follows:

TABLE 6. RATING OF NAVY SKILLS FOR VOTEC TRAINING

Excellent	Fair	Poor
Builder	Disbursing Clerk	Equipment Operator
Commissaryman	Engineering Aide	Molder
Construction Electrician	Engineman	Pattern Maker
Construction Mechanic	Interior Communications Electrician	
Electrician's Mate	Machinist's Mate	
Illustrator-Draftsman	Ship's Serviceman	
Steward	Steelworker	
	Storekeeper	

COMPARATIVE TRAINING CAPABILITY ANALYSIS

As previously discussed, public VOTEC training institutions are the most cost and training effective commercial sources for training Navy personnel in selected basic skills. There are, of course, differences in the total training capability of these institutions. Furthermore, there is often more than one public institution in the geographical areas included in this study which could possibly satisfy some or all of the Navy's desired skill training requirements. When a program is established to procure skill training from a public VOTEC institution, these issues will most normally be resolved through competitive procurement procedures. This course of action is necessary because:

1. Armed Service Procurement Regulations dictate this action,

2. It is difficult to justify a sole source procurement,

3. For a specific geographical area it is more efficient, if the capability exists, to administer a VOTEC program with one institution than with many institutions.

Phase I study findings indicated the need to establish criteria to permit evaluation and comparison of the training capability of individual public VOTEC training institutions. Criteria established for this purpose are presented in table 7. It is emphasized that the criteria and relative weights assigned could vary slightly dependent on specific training requirements; however, this should be the exception.

Table 7 is intended to be used as a selection form in rating VOTEC programs in various localities. The survey forms provided in Part II of this report are to be used in determining the general training capability of VOTEC institutions and may be used to complement the results provided by table 7. The evaluation criteria are based on the data included in the survey forms and could be used to evaluate industrial organizations and private training institutions.

Accreditation, except in extenuating circumstances, is considered a prerequisite for any commercial source providing Navy skill training. Since only those institutions having accreditation will be considered in Navy skill training procurements, it is not necessary to include accreditation as a training evaluation criteria in source selection.

Each of the evaluation criteria shown in table 7 is assigned a maximum score, the magnitude of which reflects the relative importance of the specific criterion. Using this scoring system, an institution must receive a minimum total score of 150, out of the possible 200, to be qualified to conduct training for the Navy. With the exception of the designated critical criteria, it is not mandatory that each evaluation criterion receive the minimum acceptable score specified in table 7 for the institution to be acceptable; however, the total score must be at least 150.

The training capability evaluation system presented in table 7 is straightforward and requires no explanation with the exception of three criteria. These criteria are distance from military base, square feet per student, and GFE required. In evaluating distance from military base, the institution closest to the base should receive the highest score. A distance of 25 miles is considered average and 50 miles (approximately an hour's drive) is the maximum distance permissible.

The criteria for square feet per student will depend on the specific training required. Standards have been established which set forth the recommended student area for various types of training situations.

TABLE 7 REPRESENTATIVE VOTEC TRAINING CAPABILITY EVALUATION CRITERIA

	FACILITIES	*DISTANCE FROM MILITARY BASE	CAFETERIA	SQUARE FEET PER STUDENT	NUMBERS REQUIRED COURSES OFFERED	*CURRICULUM	INSTRUCTIONAL TECHNIQUE	*COURSE LENGTH	*INSTRUCTOR QUALIFICATIONS	STUDENT/ INSTRUCTOR RATIO	GFE REQUIRED ($)	*COST PER STUDENT INSTRUCTION HOUR ($)	TOTAL
MAXIMUM SCORE	15	15	15	10	15	20	20	20	20	10	20	20	200
ACCEPTABLE SCORE	11	11	11	8	11	15	15	15	15	8	15	15	150
INSTITUTION:													
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													
11.													

*Denotes critical area. Acceptable score must be achieved for institution to be qualified to conduct training.

These standards should be referred to in evaluating the criteria for square feet per student. DoD Military Standard 1379A specifies 36 square feet/student for a general classroom and 75 square feet/student for laboratory or shop areas.

Government Furnished Equipment is an important evaluation criteria because it impacts directly on the total cost of the training program. For this reason, GFE is evaluated in terms of dollars instead of quantity. It should be recognized that the critical criteria of cost per student instruction hour does not include GFE costs. It is, however, included in the determination of the total cost of the training program(s).

Commercial contract training programs cannot be effectively established unless specific selection procedures are employed. The success of this selection process is dependent upon the nature of the specific training requirements under consideration, the validity of the evaluation criteria relative to the training requirements, and the thoroughness of applying these evaluation criteria to the institution selection process. The criteria presented in table 7 are applicable to most skill training programs; however, modification is recommended if considered necessary to reflect special training requirements.

SECTION IV

PROPOSED CONTRACT TRAINING IMPLEMENTATION PLAN

PURPOSE

This section is concerned with providing information for the development of implementation guidelines for the VOTEC training program. A management structure capable of supporting VOTEC will be defined, resources required will be identified, and resources known to exist will be indicated. Finally, actions required prior to implementation of VOTEC by the Navy will be identified.

SYSTEM STRUCTURE

The proposed VOTEC program dovetails with the present Navy training management system. Centralized management will be provided by the CNET. The Chief of Naval Education and Training Support shall provide functional program management via command elements located at major bases. These command elements will act as AVSCs providing VOTEC support to commands requiring VOTEC training in the process of rate/NEC qualification. The program should include regular and reserve components of Air, Surface, and Subsurface branches of the Navy.

Tasking agreements should be completed with commanders of bases designated as AVSC locations. These tasking agreements should include direct and indirect staffing for the AVSC, facility space with equipment allowances, and authority for use of certain base staff functions in support of VOTEC. For example, VOTEC training support funds provided to AVSCs should be received and disbursed via the base Comptroller's office and the issuing of contracts to commercial sources of training will require participation by legal and contracting departments. Perhaps the most significant impact, however, may be the assignment as a primary duty function of a qualified training officer or civilian education specialist to supervise the field program.

The concept of the AVSC evolved from the need to identify a core of training professionals at strategic locations capable of administering commercial contract training services. It is not a difficult process, but it is a unique approach and requires in-depth indoctrination as well as skills and knowledge the average training officer may not have experienced. The AVSC can appropriately be viewed as an extended staff function requiring an administrative core on a full-time basis with the authority to task existing staff specialists on a part-time basis during the contracting for training.

Navy units or commands identifying a need for and requesting VOTEC training become an integral part of the training process. Upon approval of the training request, liaison with the AVSC must be established and maintained for the duration of the training. Assistance to the AVSC is required to accurately define the training to be contracted, the time frame during which it will occur, and the parameters of support to the individual(s) receiving training. Questions relating to messing, billeting, transportation, and regular duties to be performed, must be mutually resolved by the requesting command and the AVSC. Actual contract training must be monitored and administrative reporting completed. Reference to the CNET Instruction (appendix G), the general specification for VOTEC training, and the VOTEC implementation guidelines package (TAEG Report 21-2) will assise in defining the necessary requirements.

RESOURCES REQUIRED

The resource requirement falls into three categories of personnel, publications, and funding for implementation of the VOTEC program.

1. Personnel. Thh following personnel manning requirements are provided as guidelines during the implementation phase of VOTEC.

a. It is projected that four project officers will be required for approximately one month; i.e., one each representing air, surface, subsurface, and reserve forces at the CNET prior to implementation of VOTEC. Their duties would be to coordinate individual branch efforts related to implementation and serve as a policy board providing a single set of compatible guidelines for administration of the VOTEC program.

b. Personnel requirements for bases having AVSCs include one supervisor (0-4, 0-5) on a part-time basis, one VOTEC training officer (0-2, 0-3) on a part- or full-time basis, one training support chief (E-8, E-9) or education specialise (GS-9, GS-11) on a part- or full-time basis, and one adminiserative clerk (E-6) on a full-time basis. As noted in other sections of this report, part-time support will be required from Comptroller and Contracting personnel during the processing of contracts for training.

2. Publications. A CNET instruction will be required to implement the VOTEC program. Procedural doctrines governing the administration of the VOTEC program may require development and publication in order to define branch-peculiar (i.e., Air, Surface, Subsurface, Reserve) procedures. Guidelines for AVSC operation are required to standardize the VOTEC training process. A VOTEC training specification is a requirement of the contractual procedure by which training will be obtained.

3. Funding. Funding to support the VOTEC training program requires identification and transfer to base Comptrollers to be available for use by units and commands requesting such training. This area will be a primary concern of project officers identified in paragraph 1a above.

RESOURCES AVAILABLE

Area VOTEC Support Centers were proposed only at major installations having training, comptroller, and contracting staffs in existence. Since these key personnel are available at major installations, relatively few new personnel will be required although reassessment of priority of functions and reassigment of personnel will be required. An assessment of actual billet strength versus predicted work load should be conducted at proposed locations of AVSCs prior to final determination of number of new personnel required to support the VOTEC program.

A draft of a CNET instruction for Commercial Contract Training has been provided for staffing by CNET in appendix G. An implementation package that includes guidelines for contracting VOTEC training by AVSCs, a Navy/Marine Corps specification for VOTEC training, and other data are contained in TAEG Report 21-2.

The identification of funding sources was not included within the scope of this report. It is the conviction of the investigators that the following reasons justify the costs needed for VOTEC training:

1. The VOTEC approach to NEC/rate qualification training is far less costly than training provided by low density student flow service schools.

2. VOTEC training is an economical approach to required NEC qualification training not being accomplished.

3. The VOTEC program provides a method for Navy commands to upgrade Operational Readiness posture by providing a means to more efficiently NEC qualify assigned personnel.

ACTIONS REQUIRED TO IMPLEMENT

The following actions are required to implement the VOTEC program:

1. Review data provided by TAEG Report 13-1,

2. Survey current and projected VOTEC training requirements,

3. Prepare an implementation plan,

4. Refine this implementation plan:

a. Develop a Plan of Action to include the following:

(1) Refine and coordinate the CNET instruction,

(2) Develop and coordinate branch policies (Air, Surface, Subsurface, and Reserve),

(3) Confirm personnel, facility and equipment requirements by individual base,

(4) Identify funding required and sources available,

(5) Refine AVSC implementation package.

b. Make and issue decision to implement.

c. Initiate implementation plan by:

(1) Assigning or hiring personnel required,

(2) Providing facilities and equipment if required,

(3) Publishing and distributing CNET instruction, branch policies and AVSC implementation packages,

(4) Providing funds for contractual efforts to base Comptrollers,

5. Manage program.

SECTION V

SUMMARY OF STUDY FINDINGS AND CONCLUSIONS

This section of the report presents a summary of the major study findings and conclusions. These findings and conclusions are the foundation upon which the "Proposed Contract Training Implementation Plan," presented in the preceding section, and the "Recommendations," presented in the following section, are based. The major issues presented in section III are addressed relevant to their impact upon the utility of commercial contract training for selected Navy skill training. The discussion which follows emphasizes the basic conclusion of this study--that commercial training is a viable means of supplementing the Navy's vast training system. It is not intended to, nor could it, replace presently conducted Navy skill training programs. The concept can, however, be used in appropriate situations to supplement active duty and reserve training and for mobilization. These situations are included in the discussions which follow.

1. The DoD's philosophy and attitude toward training have changed appreciably in recent years. Indicative of these changes are the many dynamic training and training-related issues being explored (including the concept set forth in this study) by all branches of the Armed Forces. Such progressive endeavors can favorably impact upon many major issues of common concern to the Armed Forces and should be supported and promoted at the highest levels of DoD management. New training concepts should be subjected to critical, but objective review, and if feasibility is demonstrated, immediate action taken to implement the concept.

2. Of the three alternatives examined during this study, public VOTEC training is, in terms of total effectiveness and utility to the Navy, the best commercial source for Navy skill training. Such institutions offer cost-effective, accredited quality training for many Navy occupational skills. They are located in all of the geographical areas included in this study; they will tailor training programs to meet specific Navy requirements; and they are receptive to training Navy personnel. Public VOTEC training institutions may be effectively used to support Navy training in the following situations:

Active Duty (Peacetime)

- Low Density Core Skills (Navy only)
- Low Density Core Skills (Interservice - Navy Responsibility)

Active Duty (Mobilization)

- High Density Core Skills
- Low Density Core Skills
- Low Density Special Skills

Navy Reserve

- Weekend Training Core Skills
- Active Duty Training Core Skills

3. The VOTEC training concept supported by this study involves numerous interrelated considerations which impact upon the management, administration, and success of newly established programs. These considerations include:

- Navy/civilian community relations
- Interservice training objectives
- VOTEC institutions can meet Navy terminal objectives
- VOTEC institutions have extensive training capability
- Individual VOTEC institutions can provide low volume pipeline training
- VOTEC institutions can meet ASPR regulations and Navy specifications
- Should maintain student in Navy environment in proximity of VOTEC institution
- VOTEC programs are cost effective
- VOTEC institutions can meet Navy peak loading and mobilization requirements
- VOTEC institutions provide accredited training

4. Analysis of the three primary rates (Lithographer, Yeoman "C" and Machinery Repairman) assigned for detailed study indicates that training for Lithography and Yeoman "C," both low volume rates, can be effectively

obtained from public VOTEC training institutions. The high volume Machinery Repairman training program conducted at San Diego is an outstanding program which involves a relatively high degree of Navy unique equipment and instruction. The Machinery Repairman rate is not considered a good candidate for commercial contract training. Cursory investigation indicates that the cost effectiveness of Machinery Repairman training could possibly be improved through the addition of a school on the East Coast. This hypothesis, however, should be the subject of a separate study.

5. Preliminary analysis of the 18 additional rates investigated during this study indicates that 39 percent of these rates are excellent candidates for public VOTEC institution training. Furthermore, 44 percent of these rates are considered good candidates for public VOTEC training; however, additional investigation is required before a final determination can be made. Approximately 17 percent of the 18 rates appear to be unsuitable candidates for commercial training, primarily because of the high percentage of Navy unique instruction and equipment inherent in these ratings.

6. Public VOTEC institutions may be utilized to effectively support the NEC qualification and refresher training requirements of individual Navy reserve units. Private training institutions and nondefense industrial organizations could be used to support reserve training in those instances where public institutions are not available; however, the training costs would be significantly increased over those of public institutions.

7. Public VOTEC institutions, private training institutions, and nondefense-oriented industrial organizations are excellent sources for training in time of mobilization. Collectively, these sources represent a powerful training capability which should appropriately be reflected in mobilization plans. Benefits to be realized by using these sources during mobilization include:

a. Significantly reducing the training load imposed upon NEC qualification schools.

b. Freeing combat ready personnel for action.

c. Increase Fleet capability to respond to an emergency.

8. From an economic standpoint, it was not possible to compare the training effectiveness and efficiency of military versus nonmilitary programs during this study. Therefore, an estimate of the absolute magnitude of cost savings was not attempted. Any realistic estimate of potential cost savings would require the development of specific training specifications for each skill and the identification of specific institutions where the training is to be accomplished. Such effort was beyond

the scope of this study. Until specific proposals, including constraints, are presented to these institutions, it is meaningless to attempt to determine the specific costs involved in undertaking and operating a military training program in a civilian institution. It was possible, however, to make certain economic based conclusions. These are summarized below.

a. Skill areas where enrollment is relatively low appear to offer the greatest potential for improvement in efficiency.

b. Because of low enrollments, nearly all journeyman courses were relatively expensive to the Navy. The low enrollment of these courses and their rather technical requirements make them ideal candidates for training in nonmilitary programs. A final determination, however, must be based on an examination of each course's requirements and the nonmilitary capability.

c. Any long term contracts which are negotiated with civilian institutions will have to be done by guaranteeing that, if and when expansion is required to satisfy the local demand for training, the Navy will have to assume the fully allocated costs of its own training, including any expansion which may be necessary.

d. The short term use of civilian institutions is a substantially different situation than the long term use. Most civilian institution administrators are eager to have their facilities used to capacity and indicated the cost of military participation would be inexpensive.

e. Many opportunities to utilize civilian institutions for military training are available. If the military will adopt a management policy (refer to the proposed CNET instruction, appendix G) which will emphasize and promote flexibility at the operational level, there is considerable evidence to indicate that a good deal of Navy training can be acquired from civilian institutions at nominal costs. This flexibility requires that contract procedures, specifications, implementation authority and procedures, as set forth in section IV and Part II of this report, be readily available which will facilitate operational decisions to utilize these civilian institutions as the need and opportunity arise.

f. The majority of civilian vocational institutions receive heavy public support which is the reason tuition and fees charged their students do not nearly cover all their costs. For the military to participate in these programs on a long-term basis at charges commensurate with costs levied on the civilian students, it will be necessary that these schools continue to receive their subsidies in analogous proportion to that currently received. If military participation in civilian training programs is limited to long-term commitments and includes high throughput, then the military will likely have to pay charges equivalent to the true long-term costs. The extent to which these charges differ from true long-term military costs determines the economic feasibility of undertaking a civilian program.

9. The ASPR sets forth appropriate contractual procedures for establishing VOTEC training programs. In most VOTEC programs, the appropriate contractual vehicle will be the "Negotiated Indefinite Quantity Contract" which meets ASPR Sections 3-409 and 3-608. The "both" party signature approach using Standard Form 26 for contract award and DD Form 1155 to order training services is preferred over the Standard Form 33 "single" signature approach.

10. The success of individual VOTEC programs is heavily dependent upon such contractually related issues as source selection, comparative training capability evaluation, and training certification procedures. Source selection criteria will normally be the same for most skill training programs and will include location, facilities, personnel, curriculum, instructional techniques, and proximity to Navy bases. Furthermore, institutions under consideration for Navy training programs and those under contract should be inspected by cognizant administrative, instructional, and subject matter specialists. Standard, comparative evaluation criteria, appropriately weighted to reflect relative importance, are required in all competitive VOTEC procurements. Such criteria should be similar to the initial source selection criteria previously discussed, and should include critical criteria that reflect the specific training requirement(s) under consideration. All VOTEC programs must include standards as a basis for certification. These standards should include definitization of the elements of instruction considered essential plus intermediate and terminal performance criteria. The best sources of standards for course certification are Navy subject matter specialists. To insure compliance with contractual objectives, all training institutions should submit a certificate of satisfactory course completion to the cognizant procuring activitiy.

11. The administration of Navy VOTEC programs should be performed through a four-tier level structure. Administrative control should flow from the CNET (management and funding) to the CNETS (implementation management), to AVSCs (user services) to the level four fleet training and operational commands. The efficiency and effectiveness of VOTEC programs will be substantially improved by minimizing required approval levels. Additional staffing required, if any, to administer Navy VOTEC programs is undetermined; however, a minimum of one civil service education specialist is essential to promote program continuity.

12. An effective centralized management system is the key to a successful Navy-wide VOTEC program. Centralized management of policy and

funding should be provided by the CNET. Functional program management via command elements located at major Navy installations should be provided by the CNETS.

13. Area VOTEC Support Centers should be established at major Naval installations (Memphis, Great Lakes, Orlando, San Diego, Norfolk, and Hawaii) where training and contract personnel are available to support VOTEC programs. These support centers will function as an advisory, contracting, and monitoring service agency to insure quality contract training and will provide interface with Navy active and reserve units and VOTEC institutions. Specific functions of the AVSCs are presented in Part II of this report.

14. Navy VOTEC training programs should be implemented in accordance with the management and administrative structures proposed in this report (refer to section IV). Implementation of the VOTEC concept should include the establishment of tasking agreements with commanders of bases designated as Area VOTEC Support Center locations. These tasking agreements should provide as a minimum, direct and indirect staffing for the Area VOTEC Support Center, facility space with equipment allowances, and authority to use appropriate base staff functions to support the VOTEC program. The proposed CNET Instruction, included as appendix G, should be used in conjunction with Part II, VOTEC Implementation Guidelines Package, for initial implementation of the VOTEC concept. Four project officers, representing Air, Surface, Subsurface and Reserve forces, will be required for approximately one month at the CNET to implement the concept.

15. Personnel requirements for bases having AVSCs include one supervisor (O-4, O-5) on a part-time basis, one VOTEC training officer (O-2, O-3) on a part- or full-time basis, one training support chief (E-8, E-9) or education specialist (GS-9, GS-11) on a part- or full-time basis, and one administrative clerk (E-6) on a full-time basis.

16. The proposed CNET instruction for VOTEC training, included as appendix G, has been coordinated with cognizant procuring contracting officers, Naval schools, and VOTEC institutions. It is essential that this instruction, or a similar version thereof, be issued if the VOTEC concept is to be a viable Navy training resource which meets the potential this study indicates.

17. A comprehensive portfolio should be prepared which identifies the training capabilities of all public and private VOTEC institutions and major industrial organizations within the CONUS. This portfolio will be of considerable benefit to the proposed VOTEC concept set forth in this study and should be included in Naval mobilization plans.

18. VOTEC institutions considered for active duty and Reserve Naval training should normally be limited to those institutions within a 25-mile radius of the Naval installation. The cost effectiveness of the concept decreases and administrative problems increase rapidly as this limit is exceeded.

SECTION VI

RECOMMENDATIONS

This section presents the final recommendations concerning the utilization of commercial sources, under contract, to provide selected basic skill training for enlisted personnel of the Navy. The recommendations have the goal of providing effective beneficial changes to Navy training in certain vocational/technical skills that are common to both the civilian and military communities.

1. The Chief of Naval Education and Training (CNET) should adopt the vocational/technical (VOTEC) concept for selected basic skill training at the "A" School or apprentice level.

2. The CNET should place emphasis on public institutions as the major source of VOTEC training for selected basic skills.

3. The VOTEC training program during peacetime should be limited to low volume pipeline training by individual VOTEC institutions.

4. The VOTEC training concept should be considered for low volume basic skill foreign training requirements.

5. The VOTEC training concept should be included for peak training requirements and low volume basic skill training as part of the CNET Long Range Plan.

6. The CNET should implement plans to include VOTEC training as an adjunct to mobilization planning.

7. The Navy VOTEC program should be centrally managed by the CNET concerning policy, planning, programs, and budgeting.

8. The CNET should delegate the implementation of the VOTEC program to the Chief of Naval Education and Training Support (CNETS).

9. The CNETS should establish Area VOTEC Support Centers (AVSCs) at selected CNET training installations. The initial AVSCs should be established at Memphis, Great Lakes, Orlando, Norfolk, San Diego, and in Hawaii.

10. The establishment of AVSCs should be limited to Navy complexes having procurement services and comptroller functions capable of supporting the VOTEC program.

11. The CNETS should be tasked to maintain a comprehensive portfolio on the capabilities of commercial contract training sources. This VOTEC

information will be used for selection of commercial training sources for peacetime training and for mobilization planning.

12. The CNET should establish a policy of using, during peacetime, VOTEC training institutions within approximately 25 miles of selected Navy installations.

13. The proposed CNET Instruction 1550___ should be issued by the CNET for implementation of the VOTEC program.

14. The Navy AVSCs should use the VOTEC program guidelines established by TAEG Report 21-2.

15. The AVSCs should use the Training Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program as the basic document when supported by the appropriate specific curriculum for defining VOTEC programs to be procured. This specification is presented in TAEG Report 21-2.

16. The CNET should establish a policy that VOTEC contract agreements be "Negotiated Indefinite Quantity Contracts" with "both party" signature as defined by the Armed Service Procurement Regulation (ASPR).

17. The CNET should conduct a pilot VOTEC training program using the Lithographer rating at the apprentice level. It is suggested that the Lithographer curriculum as developed by the TAEG be used for this program. It is further suggested that this pilot VOTEC program be conducted in the Orlando area.

18. The CNET should consider VOTEC training in the planning of the Navy Enlisted Occupation Classification System (NEOCS) for selected low volume apprentice level programs.

19. The NEOCS planners should consider the use of apprentice level training for the Media occupational field for initial VOTEC training.

20. The CNET should consider a single site AVSC in the San Diego area and Hawaii to jointly serve the Navy and Marine Corps.

21. The CNET should suggest to the Chief of Naval Reserve the application of the VOTEC training concept for "weekend" reserve training and annual active duty for training.

APPENDIX A

QUESTIONNAIRES

CCT QUESTIONNAIRE

INSTITUTION:

LOCATION (1) DIST:

LOCATION (2) DIST:

LOCATION (3) DIST:

LOCATION (4) DIST:

ACCREDITED BY (1)

(2)

ENROLLMENT	FULL TIME	PART TIME	TOTAL
TOTAL	________	________	______
DAY	________	________	______
EVENING	________	________	______

SIZE OF CAMPUS ________ ACRES

NO. BUILDINGS ________

CLASSROOM SPACE ________ FEET ________ ROOMS

LABORATORY/WORKSHOP SPACE _______ FEET ________ ROOMS

WHEN CONSTRUCTED: 19___ - 19___

FUNCTIONAL DESIGN: GOOD ____ FAIR ____ POOR ____

TUITION: ______ PER ________

AVERAGE CLASSROOM LOAD _______ STUDENTS

INSTRUCTOR/STUDENT RATIO: ___:___

COURSE DEVELOPER(S): ____

APPROACH: CONVENTIONAL____

SYSTEMS____

REMARKS: ____

INDUSTRY NEED CHECK? _____

NEED OF STUDENTS CHECK? _____

FORECAST NEED OF COMMUNITY EVIDENT? _____

ADEQUATE SOURCE OF QUALIFIED CANDIDATES? _____

LEARNING RESOURCE CENTER? _____

SIZE:

ITV _____ SOUND/SLIDE _____ 8MM _____

MICROFICHE _____ 16MM _____ P.I. _____

CARRELS: NO. ____ EQUIPPED WITH:

DRY _____ SOUND/SLIDE _____ FILM _____ CRT _____ RESPONSE _____

DISPLAY _____ P.I. _____ OTHER: ______________________________

USED FOR (COURSES): ______________________________

____

SPECIAL FACILITIES FOR TRAINING;

AUTO SHOP: ______________________________

ELECTRICAL SHOP: ______________________________

FOOD PREPARATION: ______________________________

DRAFTING: ______________________________

SMALL ENGINE (MAINT. & REPAIR): ______________________________

HEAVY EQUIPMENT OPERATION; ______________________________

HEAVY EQUIPMENT REPAIR: ______________________________

PHOTOGRAPHY LAB: ______________________________

SURVEYING: ______________________________

MATERIALS TESTING (CONSTR.): ______________________________

MACHINE SHOP: LATHE(S) _____ DRILL PRESS _____

SHAPER(S) _____ BENCH GRINDER(S) _____ MILLING MACH. _____

BORING MILL(S) _____ POWER HACKSAW _____

METAL ENGRAVING PANTOGRAPH _____ OTHER ______________________________

PRINT SHOP: OFFSET PRESS _____ PLATEMAKER (COPIER) _____

PLATEMAKER (BURNER) _____ STAPLING MACH. _____

DRILL (SINGLE SPINDLE) _____ COLLATOR (MAN.) _____ AUTO _____

PHOTO LAB _____ LETTERPRESS _____ VARITYPER _____

HEADLINER _____ LIGHT TABLE _____ XEROX COPIER _____

METAL WORKING: SHEET METAL _____ GAS CUTTING/WELDING _____

ARC WELDING_____ RIGGING_____ METAL WORKING_____ STEEL ERECTION_____

DIESEL ENGINES (OPERATION & MAINT.) CATERPILLAR _____ INTERNATIONAL _____

CUMMINS _____ LD 465-1 MULTIFUEL _____ OTHER __________________________

COMMUNICATIONS (MAINT. & REPAIR) SYNCHRO UNITS _____

ALARM, WARNING, CALL BELL _____ INTERCOM SYS _____

TELEPHONE ANNOUNCING _____ GYROCOMPASS _____ SELSYN INSTRUMENTS_____

AIR CONDITIONING, HEATING, REFRIGERATION: _____

PROPULSION ENGINES: STEAM: 600 psi _____ 1200 psi _____

OTHER ____

AUXILIARY ENGINES: BOILERS _____ DISTILLING _____

FOUNDRY SHOP: MOLDER____ PATTERN MAKER____ WOOD____ METAL____ PLASTER____

FOUNDRY FACINGS _____

CASTING: NON-FERROUS _____ FERROUS _____ ALLOY _____

CUPOLA FURNACE____ CORE BAKING OVEN____ METALLURGY____ THERMITE CASTING____

ELECTRICAL CONSTRUCTION: (INSTALLATION/REPAIR)

HIGH VOLTAGE ____ LOW VOLTAGE ____ UNDERGROUND ____ GENERATORS ____

POWERPLANT CONTROL ____ CONDUIT INSTALL/REPAIR ____ LINEMAN ____

CONSTRUCTION: WOODWORKING/MILLWORK ____

LIGHT FRAME STRUCTURE____ ROOFING____ PAINTING____GLAZING____ MASONRY____

CONCRETE____ PLUMBING____

CCT QUESTIONNAIRE: INSTITUTIONS WITH DORMITORY FACILITIES

HOUSING:

Cost: ____________

Includes: Dormitory Room ______
3 meals per day, 7 days per week ______
Laundry, Dry cleaning ______
Student Clinic Services ______

Capacity: Male: ______
Female: ______

Dormitory Layout: (Sketch) Condition __________________________

____

Students per Room ______ Bay: _________ Bldg: _________

Furnished with:

Head Facilities: (per building)

Male: No.____ Toilets ____ Urinals ____ Basins ____ Baths ____ Shwr ____

Female: No.____ Toilets ____ Basins ____ Baths ____ Shwr ____

General Condition: __________________________________

____

Telephone(s) _________ Per Bldg. _________

Study Facilities ____

____

Messing Availability to Housing: ____________________________

____

Building Security: _______________________________________

Copy of Dorm. Rules ____________

Parking Facilities ____________ Fees? ____________

MESSING FACILITIES:

Capacity: ____________________

Dining Hall Condition: ____

____

Hrs. of Operation:

BFST: ______________________________

Lunch ______________________________

Dinner ______________________________

Other ______________________________

Quality of Food ________________________

Dietitian Used? ________________________

Kitchen: ________________________________ Condition _________________

____

MILITARY ADMINISTRATION:

Office Space: OIC________NCOIC________Clerk________Supply__________

Supply/Storage Room:________________Location(s):_____________________

Civilian Housing:____

____

Nearest Military Admin. Support: (Orders, Travel, Finance)__________

____

Nearest Airport(s):____

Local Transportation____

____

SCHOOL:

Photographs & Sketches _____________

Course Outlines, etc. _____________

Integration Aspects _______________________________________

Recreation, Activities ______________________________

____

Distance From Town Center ____________________

Security an Discipline ______________________________

Student Attitudes ______________________________

Government Contracts or Agreements: ____________________

____

____

COMMUNITY:

Transportation: ______________________________

Chamber of Commerce: ______________________________

Churches: ______________________________

Hotels, Motels: ______________________________

Housing: ______________________________

Recreation: ______________________________

____

Local Attitudes: ______________________________

Medical Facilities: ______________________________

Population: ______________________________

RECRUITING OFFICE (Post Office?): ____________________

____

CONTACT(S): ______________________________

____

____

____

FACILITIES SURVEY

CURRICULUM	Positions ea. class	Positions total	Number spaces	Classroom equipment	Training equipment	Operational equipment

OH: Overhead projector
SP: Slide projector
SSP: Sound-slide projector

8MP: 8mm movie projector
16MP: 16mm movie projector
BKB: Blackboard

CCTV: Closed circuit TV
TVM: TV monitor (Std. Bdcst)
CAR: Carrel(s)

BUILDER (BU)

CURRICULUM CONTENT INVENTORY

VOTEC INSTITUTION:______________________________

Elements of Training	Capability		
	Full	Part	Pot.
1. Structural carpentry			
2. Working with mortar			
3. Working with bricks, cinder blocks, tile			
4. Stonemasonry			
5. Use of mast and boom derricks, "A" frames and gin poles			
6. Hand signals for directing equipment operators			
7. Construction of coffer dams			
8. Pile driving			
9. Safety precautions			
10. Carpenter and builder mathematics			
11. Blueprint reading and building layout			
12. Bill of materials, estimates, and job planning			
13. Concrete forms, concrete block and tile setting, masonry construction			
14. Light and heavy frame construction			
15. Roofing, waterproofing, insulating, weatherproofing, preserving and painting			
16. Cabinetwork, interior and exterior carpentry			
17. Rigging and rigging assemblies			
18. Heavy timber structures			

DISBURSING CLERK (DK)

CURRICULUM CONTENT INVENTORY

VOTEC INSTITUTION: ______________________________

Elements of Training	Capability		
	Full	Part	Pot.
1. Disbursing Office organization			
2. Protection of critical records and money			
3. Use of official disbursing publications			
4. Pay and allotment records			
5. Organization and functions of Disbursing Offices and Supply Departments			
6. Use of office machines: typewriter, calculator, adding machine, graphotype and addressograph			
7. Pay account regulations and procedures			
8. Disposition of pay records			
9. Transportation and meal tickets, cash advances, transportation claims, household shipment claims			
10. General accounting			
11. Public vouchers			

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STOREKEEPER (SK)

CURRICULUM CONTENT INVENTORY

VOT INSTITUTION: ______________________________

Elements of Training	Capability		
	Full	Part	Pot.
1. Basic storekeeping, requisitioning, invoicing, accounting and record-keeping			
2. General storekeeping afloat			
3. Clothing and small stores			
4. Provisions, food service records and returns			
5. Correspondence preparation			
6. Typing			
7. Organization and function of Supply Dept			
8. Use of appropriations and funds			
9. Determination of store requirements for shore stations and ships going on cruise			
10. Supplies procurement			
11. Inspection and accounting for stores			
12. How to store various types of supplies			
13. Preparation of ocean manifests and bills of lading			
14. Use of duplicating, adding and calculating machines and typewriters			

YEOMAN (YN)

CURRICULUM CONTENT INVENTORY

VOTEC INSTITUTION: ______________________________

Elements of Training	Capability		
	Full	Part	Pot.
1. Touch typing			
2. English usage			
3. Correspondence and reports preparation			
4. Service records and personnel admin.			
5. Legal records and procedures			
6. Organization and maintenance of files			
7. Receptionist duties			
8. Office secretarial duties			
9. Investigations and trial clerk			
10. Duplicating and audio recording equipment			
11. Office supplies requisitioning			
12. Classified material procedures			
13. Naval disciplinary system, including courts-martial and courts of inquiry			
14. Instructions relating to pay and allowances, travel and transportation, quarters and subsistence			
15. Officer personnel administration			
16. Legal stenography			
17. Medical stenography			
18. General stenography			

DISBURSING CLERK (DK)

CURRICULUM CONTENT INVENTORY

VOTEC INSTITUTION: ______________________________

Elements of Training	Capability		
	Full	Part	Pot.
1. Disbursing Office organization Navy Comptroller Manual (Vol. IV)			
2. Protection of critical records and money Navy Comptroller Manual (Vol. IV)			
3. Use of official disbursing publications Department of Defense Pay Manual Military Pay Procedures Manual Pay and Personnel Procedures Manual Joint Travel Regulations Navy Travel Instructions Navy Comptroller Manual (Vol. II and IV) Financial Management Handbook Advance Travel Handbook			
4. Pay and allotment records Department of Defense Pay Manual Military Pay Procedures Manual Pay and Personnel Procedures Manual			
5. Organization and functions of Disbursing Offices and Supply Departments (as related to disbursing) Navy Comptroller Manual (Vol. IV)			
6 Use of office machines: typewriter (23 hours) calculator, adding machine Service Manual, Marchant 221 Electronic Calculator.			
7. Pay account regulations and procedures Department of Defense Pay Manual Military Pay Procedures Manual Pay and Personnel Procedures Manual			
8. Disposition of pay records Military Pay Procedures Manual			

DISBURSING CLERK (DK)

CURRICULUM CONTENT INVENTORY

VOTEC INSTITUTION: ____________________

Elements of Training	Capability		
	Full	Part	Pot.
9. Transportation, Travel advances, transportation claims Joint Travel Regulations Navy Travel Instructions Official Table of Distances			
10. Public Vouchers Navy Comptroller Manual (Vol. IV)			
11. Appropriation, Funds and Account numbering system Navy Comptroller Manual (Vol. II)			
12. Preparation of Financial Reports Navy Comptroller Manual (Vol. IV)			

PHASE I: (8 weeks) Basic Indoctrination (240 hours)
PHASE II: (4 weeks) Specialized for small ship trainees (120 hours)
(Travel, Transportation, Reports and Returns)

Schedule: 6 hours daily, 5 days per week (30 hours)

TABLE OF ABBREVIATIONS
(Disbursing Clerk School)

NAVCOMPMAN	Navy Comptroller Manual (Vol II & IV)
DOD PM	Department of Defense Pay Manual Military Pay and Allowances Entitlement Manual
MPP	Military Pay Procedures Manual NAVSO P-3007-29 (STK. NO. I-0515-901-0031)
PPM	Navy Pay and Personnel Procedures Manual NAVSO P-3050-6 (STK. NO. I-0515-920-6706)
JTR	Joint Travel Regulations Vol. I (Mil), Vol. II (Civ) I (STK. NO. I-0516-255-0185) II (STK. NO. I-0516-255-1309) Military Civilian
NTI	Navy Travel Instructions NAVSO P-1459-4 (I-0515-064-0030)
ATH	Navy and Marine Corps Advance Travel Handbook NAVSO P-3084
FMH	Financial Management Handbook for permanent change of station NAVPERS 15982C
OTD	Official Table of Distance NAVSO P2471

APPENDIX B

INDUSTRY TRAINING CAPABILITY ANALYSIS

The general capability of industry sources was discussed in detail in TAEG Report 13-1; Phase II addresses the application of existing industry training to specific Navy skills.

Table B-1 is the result of the Phase II analysis, and from this examination it is apparent that the types of training with which industry is engaged fall into certain limited categories related to product lines. Few of the selected or proposed ratings would appear to be served by industry activity. However, in some instances manufacturing concerns have established training sales divisions which are designed to meet a wide variety of skill training needs of customers. In most of these cases, however, the service consists of providing instructors and curricula for presentation at the customer's site.

It is important to note that the table merely indicates that training is being conducted by the industry source for its own purposes and that the substance of such training may be limited to the essentials required for its workers. There is also no indication of the availability of spaces for Navy trainees, which may not exist, or may vary from time to time. In addition, many industry sources have no interest in contractually providing such training, for various reasons. There is no common denominator for training facilities; they vary so widely that each source must be considered individually.

Perhaps the greatest problem relating to the use of industry sources for training lies in the fact that few, if any, are located within convenient access to Navy training bases. Also, the procedure of industry sources providing instructors and curricula at Navy facilities is useful where a shortage of qualified personnel exists, but would be self-defeating where economic reasons dictate the use of non-Navy or interservice facilities and personnel currently in existence.

TABLE B-1. NAVY RELATED SKILL TRAINING IN INDUS

INDUSTRY SOURCE OF TRAINING[1]	CODE	SELECTED				PROPOSED CANDIDATES											
		Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissaryman	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	
	NEC	3600	4400	2514	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	52
	DOD	700	702	510	710	800	721	612	542	662	412	652	730	414	623	651	7
1033.2								X									
1033.3										X					X		
1033.4			X							X	X	X	X	X		X	
1033.5								X									
1033.6								X									
1033.7								X									
1033.8																	
1033.9																	
1033.10							X			X					X		
1033.11			X					X		X							
1033.12										X							
1033.13			X					X			X						
1033.14										X							
1033.15			X							X					X	X	
1033.16																	
1033.17			X							X						X	
1033.18			X							X						X	
1033.19			X							X						X	
1033.20					X	X	X	X		X						X	
1033.21				X						X					X		
1033.22										X							
1033.23								X		X							
1033.24								X		X							
1033.26										X						X	
1033.27								X		X				X		X	

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[1] Numerical indicators are used to identify specific industrial organizations. The key for these indicators is maintained in the TAEG files.

ABLE B-1. NAVY RELATED SKILL TRAINING IN INDUSTRY

PROPOSED CANDIDATES															
Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper	
800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800	
612	542	662	412	652	730	414	623	651	790	790	823	411	801	551	
X															Airline Operations
		X					X								Communications
		X	X	X	X	X		X							Acft Mfr Tng Div
X															Beverage
X															Airline Operations
X															Airline Operations
															Flight Training
															Utility (Gas)
		X					X								Utility (Electrical)
X		X													Auto Mfr.
		X													Elec. Appliance Mfr.
X			X												Auto Mfr.
		X													Tire Mfr.
		X					X	X				X			Aircraft Mfr.
															Computer Mfr.
		X						X							Aircraft Mfr.
		X						X							Aircraft Mfr.
		X						X				X			Aircraft Mfr.
X		X						X				X	X		Machine Mfr.Tng.Div.
		X					X								Instrument Mfr.
		X													Electronics Mfr.
X		X													Airline Operations
X		X													Airline Operations
		X						X							Appliance Mfr.
X		X				X		X							Duplicating Eqpt.Mfr

ific industrial organizations. The key
files.

APPENDIX C

TRAINING INSTITUTION CAPABILITY ANALYSIS

A survey of 10 specific geographical areas was conducted to assess the capability of training institutions within these areas to provide Navy training in selected NEC skills. The Naval Training Centers at Great Lakes, San Diego, and Orlando were primary areas of consideration because they provide a continuous supply of potential apprentice, or "A" School level, students upon their completion of recruit training. All of the geographical areas were selected because of the availability of a major Navy installation to provide housing and administrative support to Navy VOTEC students. A brief summary of the VOTEC training capability of institutions located within each of the 10 geographical areas is presented in this analysis. Specific data relating to the course offerings, tuition costs, and facilities of the training institutions analyzed are presented in tables C-1 and C-2. The 10 geographical areas surveyed were:

- Great Lakes Naval Training Center, North Chicago, Illinois
- Orlando Naval Training Center, Orlando, Florida
- San Diego Naval Training Center, San Diego, California
- Norfolk Naval Base, Norfolk, Virginia
- Naval Air Station, Meridian, Mississippi
- Pensacola Naval Air Station, Pensacola, Florida
- Memphis Naval Air Station, Millington, Tennessee
- Pearl Harbor Naval Base, Hawaii
- Jacksonville Naval Air Station, Jacksonville, Florida
- Charleston Navy Base, Charleston, South Carolina

GREAT LAKES NAVAL TRAINING CENTER AREA

There are several highly qualified vocational/technical institutes and community colleges in the Great Lakes area. Chief among these are Triton Community College and Gateway Technical Institute, which have achieved national recognition as outstanding examples of vocational/technical training centers.

1. TRITON COLLEGE is located on an 86-acre campus in River Grove, Illinois. A faculty and staff of 900 are required to accommodate a school enrollment in excess of 13,000 students. It is fully accredited by the North Central Association of Colleges and Secondary Schools. This institution offers career education certificate and degree programs, university transfer credits, curricula leading to a four year degree, and General Studies Certificates. Tuition is $9 per semester hour ($36 out of district). In some cases "in district" fees apply to Navy personnel for courses not offered in the Great Lakes district. For the associate degree, students must have a high school diploma. Written and

practical placement exams are normally administered to technical area applicants. Triton College possesses a wide range of technical laboratory facilities. The photo offset-lithography lab is particularly well equipped. A one-year certificate or two-year associate degree is offered, with some 400 students currently in the program. Of special interest is a self-contained print shop for all-in-one training for small print shop activities--a concept related to ships' print shops. There is considerable space available for additional students in the Printing Department.

There are 79 occupational programs offered at Triton, with additional ones being added on the basis of need. No difficulty in setting up special Navy classes for full-time, 40-hour instruction per week was indicated. Attendance at Triton College is near capacity in the evening hours; however, considerable student space is available during daytime hours.

2. GATEWAY TECHNICAL INSTITUTE is located 25 miles from Great Lakes Naval Training Center in Kenosha, Wisconsin. The school also has campuses at Racine and Elkhorn, Wisconsin. The Racine, Wisconsin, campus is only a few miles more distant and also possesses excellent facilities. The Institute is accredited by the North Central Association of Colleges and Secondary Schools. The Kenosha Campus consists of four modern buildings on 50 acres, with 120,000 cu. ft. of working space. There are 2300 students on campus, and a total of 40,000 taking some training, full- or part-time. Approximately 4000 technical courses are offered, for which diplomas, certificates of completion, or associate degrees are granted. Contact hours range from 25 to 30 hours per week in technical courses. The Kenosha Campus is one of four in the nation selected as standards for school architectural arrangement in qualifying for federal grants, and the school has been reviewed by trade publications as an outstanding example of technical school facilities. There is no tuition for District students; however, Great Lakes Navy personnel would probably be classified as "out-of-state" at $18 per credit hour. Consideration is being given to a reciprocal agreement with College of Lake County to permit lower tuition for Great Lakes personnel.

3. COLLEGE OF LAKE COUNTY is located a short distance from the Great Lakes Naval Training Center. It has been awarded full accreditation by the North Central Association of Colleges and Secondary Schools. Present enrollment is about 5500, mostly career oriented, with more than half the training in evening classes. Quality training programs are provided in secretarial skills, data processing, drafting, auto mechanics, and electronics. Curricula are technical/vocational oriented, with emphasis placed on practical application. Instructors usually come from industry and are carefully selected for special qualifications in their field. Present activities at this college show high potential for a wide range of technical skill training, and expansion of facilities will

greatly increase this capability. When planned construction is completed, the campus should be comparable to the Triton and Gateway facilities.

4. WILLIAM RAINEY HARPER COLLEGE is located near Palatine, Illinois, in a complex of modern buildings, well equipped for technical/vocational training. It has strong programs in electronics, business-secretarial, data processing, and mechanical engineering.

While this institution offers curricula in a number of areas of interest to Navy training, its location is remote, and its facilities, while excellent, are overshadowed by those of other colleges in the Great Lakes area. For this reason, it is not considered a prime candidate for Navy skill training.

ORLANDO NAVAL TRAINING CENTER AREA

Institutions oriented toward vocational/technical training in the Orlando Naval Training Center area include Mid-Florida Technical Institute, Valencia Community College, and Seminole Junior College. Each of these possesses excellent facilities and is a relatively short distance from the Navy base.

1. MID-FLORIDA TECHNICAL INSTUTUTE is an Area Vocational Technical School, accredited by the Florida State Department of Education, and operated by the School Board of Orange County. It is located on a 120-acre campus in Orlando, Florida. In addition to vocational/technical instruction, the student may complete academic requirements for a high school diploma. Students are awarded Certificates of Proficiency upon satisfactory completion of vocational/technical courses. The Institute offers training in 20 fields and is designed to accommodate 2000 full-time students. All courses are accredited by the Florida State Department of Education, and many are approved by the Veteran's Administration under Chapter 36, Title 38, U.S. Code. All instructors hold valid teaching certificates from the Florida State Department of Education. The institution is currently in candidate status for accreditation by the Southeast Association of Colleges and Schools.

2. VALENCIA COMMUNITY COLLEGE, as part of the statewide system of higher education, is accredited by the Florida State Department of Education. It is a fully accredited member of the Southern Association of Colleges and Schools. Valencia provides a two-year college parallel program to prepare students for transfer to senior colleges and universities upon completion of an Associate in Arts Degree. This institution also provides career programs to prepare individuals for employment in industries and businesses appropriate to meet the needs of the area. Nineteen programs are available to prepare students for employment upon completion of the Associate in Science degree.

3. SEMINOLE JUNIOR COLLEGE is located on a 170-acre campus approximately 15 miles from the Orlando Naval Training Center. It is a public junior college supported by the State of Florida and Seminole County. Seminole Junior College is fully accredited by the Southern Association of Colleges and Schools and the Florida State Department of Education. The College offers associate degree and certificate programs in data processing technology, design drafting technology, secretarial science, and quality control and reliability.

SAN DIEGO NAVAL TRAINING CENTER AREA

All of the junior college and vocational school programs were combined in 1954. A new campus was built in 1956 which provides the college with technical and general education classrooms, as well as a library, student center, and administrative offices. Three operating divisions were established in 1962. They were City College, Mesa College, and Evening College. These colleges are accredited by the Western Association of Colleges and Schools.

1. SAN DIEGO CITY COLLEGE offers programs in the arts and sciences, business, and technical occupations. Specialized facilities are provided for such technical skills as auto mechanics, cabinet making, engineering technology, machine shop, and welding. Current enrollment is approximately 5000 students.

2. SAN DIEGO MESA COLLEGE consists of a complex of 20 buildings, including a Technical Arts Building. Relatively few technical courses with which the study is concerned are taught at this facility. Enrollment is approximately 7500 students.

3. SAN DIEGO EVENING COLLEGE conducts a wide variety of classes on the City, Mesa, and Miramar (Regional Center) campuses, as well as numerous off-campus locations. Most technical training is done at the City College Campus. Enrollment is approximately 14,500 students.

4. GROSSMONT COLLEGE, a member of the San Diego Community College Association, is located on a 135-acre site in the Fletcher Hills area adjacent to the cities of El Cajon and La Mesa. Technical/Vocational certificates and degrees are offered in data processing, engineering technology, food service management, and industrial technology. The laboratory facilities and equipment available in all of the vocational education programs are of the same quality as found in actual practice.

5. SOUTH BAY TRADE SCHOOL is a unique privately operated VOTEC institution located in downtown San Diego. Current courses include drafting, sheet metal, pipefitting, shipfitting, welding, and automotive mechanics. The school has a history of providing speciality training for government and industry. Facilities include simulated work environment

areas where hands-on skill training is conducted. In 1974, this institution provided a special two-week program for the 4th Marine Division in support of MOS 3516 qualification. This course proved to be highly successful and is an excellent example of the VOTEC concept used to train Marine Reserve personnel during annual active duty training.

NORFOLK NAVY BASE AREA

There are two community colleges, a state college, and a vocational/technical center convenient to Naval facilities in Norfolk, Virginia. They include Norfolk State College, Norfolk Vocational Technical Center, Tidewater Community College, and Thomas Nelson Community College. In addition, there are a number of vocational/technical centers within easy commuting distance.

The Virginia Community College System is a separate agency from the State Department of Education and is still in the process of development. Community colleges offer diploma, certificate, and associate degree programs in college transfer and occupational technical curricula. There are 23 community colleges in Virginia, some with multiple campuses.

1. NORFOLK STATE COLLEGE is an independent, four-year accredited college offering certificate, associate in science, and bachelor of science degrees in a wide range of academic and technical fields. The college is located on a 100-acre campus near downtown Norfolk. Total enrollment is approximately 6000 which includes 4600 full-time and 1400 part-time students. Tuition is $460 per semester for full-time resident students and $16 per credit hour for part-time students. Instructors must have a master's degree and at least two year's journeyman experience in industrial skills. Course development is done by instructors and departmental personnel using task analysis and systems approach techniques. Special facilities for training include an auto shop, an electrical shop, a food preparation facility, drafting rooms, a small engine repair shop, surveying training, a construction materials testing lab, a general metals-working shop (including sheet metal handling, gas/arc welding), a communications equipment lab, an electrical/electronics shop, and a construction shop (all phases). Current curriculum is college-academic oriented with much "nice-to-know" content which would not be required for Navy technical training. The college is receptive to the concept of training Navy personnel and indicated that programs can be tailored to provide desired curricula. The best period for incorporation of larger numbers of students would be between 1500 to 2000 hours; smaller numbers could fit into regular class schedules.

2. NORFOLK VOCATIONAL TECHNICAL CENTER possesses the most impressive technical training facilities in the Norfolk area. It is basically a public secondary school with adult vocational training in the evening

(1830 to 2200) which is located within eight miles of the Navy base on a 30-acre campus. Enrollment is approximately 800 high school students and 300 adults during the day and 1400 adults in the evening.

This school serves students from six Norfolk City high schools, who attend three consecutive class periods in the morning or afternoon. An extensive evening program for apprentices, and for others needing vocational training, is operated each night during the week. Instructors are journeymen/tradesmen, certified with two years experience (average is ten years). A four-year college degree is not required, but some instructors are so qualified. Several are former Navy Chiefs, with instructor experience in their fields. A State-required instructor's course is provided as part of a continuing program of in-service education.

3. TIDEWATER COMMUNITY COLLEGE, FREDERICK CAMPUS has three campuses in the Norfolk area. The Frederick Campus is located on 750 acres about 25 miles west of the Norfolk Naval Station. The college is fully accredited by the Southern Association of Colleges and Schools and the State of Virginia. Present enrollment totals 2500 students, of whom 1850 are full-time. The college has had considerable experience in providing training for Navy activities; e.g., ADCOP, PREP, CAMSI, Naval Shipyard Apprentices, Air Rework Facility students, etc. Tuition is $6.25 per quarter hour, or by contract or cost basis. Instructor-student ratio is about 1:15 for technical courses; classes seldom exceed 19.

The Frederick Campus is somewhat remote and has, at present, relatively few facilities for the training skills with which this study is concerned. The situation may improve after completion of a new $3 million campus now under construction.

4. THOMAS NELSON COMMUNITY COLLEGE is located about 15 miles from the Norfolk Naval Station. The college is located on a 38-acre site near the cities of Hampton and Newport News. It is a two-year community college of the State system, accredited by the Southern Association of Colleges and Schools and approved by the U.S. Office of Education for Federal programs. Current enrollment is 3082 with 1169 full-time and 1913 part-time students. Instruction is provided off campus at all the area military bases and other locations. Tuition is $75 per quarter; average course load is 12 to 15 hours for regular students. Curricula are developed locally in accordance with State master curriculum guides. New courses are written by department personnel and instructors, subject to State approval. No particular emphasis is given to application of the systems approach to course design. College personnel indicated that tailoring courses to meet Navy requirements would not be any problem. The academic requirements would be somewhat reduced, in line with certificate programs. The college has close working relationships with NASA and Navy installations in the area.

MERIDIAN NAVAL AIR STATION AREA

Two community colleges are the primary sources of post-secondary vocational/technical training in this area. They are the Meridian Junior College and the East Central Junior College. Both of these institutions are members of the State system of public junior colleges, operating on 25 campuses throughout the State. A third institution, the John Stennis Vocational Complex at Dekalb, Mississippi, was included in the study because of its proximity to the Naval Air Station and because technical evening courses are conducted for the Navy. The junior colleges are responsible for post-secondary vocational/technical training in the State of Mississippi.

1. MERIDIAN JUNIOR COLLEGE is the most promising institution in the Meridian area for providing post-secondary vocational training for Naval personnel. This college is located on a 27-acre campus approximately 18 miles from the Naval Air Station. The 2100 students (60 percent day and 40 percent evening) enrolled in the college have nine vocational and five technical programs from which to choose. Tuition is $4.50 per credit hour; an average student semester cost of $87. The college has an additional facility located in downtown Meridian which offers vocational courses to adults for noncredit, six hours daily, five days a week. The length of these courses varies from three to six months. Although present enrollment is near capacity, college representatives were receptive to discussing Navy training requirements.

2. EAST CENTRAL JUNIOR COLLEGE at Decatur, Mississippi, is located on a 200-acre campus about 40 miles from the Naval Air Station (60 minutes). Although the college is considerably more distant than Meridian Junior College, it does offer some training not offered at Meridian; e.g., auto mechanics, radio and TV repair, and welding. Another special feature of the college is that it has dormitories; four for males, with a capacity of 280 students, and two for females with spaces for 185. The school offers comprehensive vocational/technical training in modern facilities. Seven full-time vocational programs and four technical programs are available. In addition, various adult classes are offered. Day students in the district may commute and pay a nine-month tuition of $170 to $200 or live on campus for a total of $610 to $750. Total enrollment is approximately 1000 students, 90 percent of which are day students. The college is on a conventional two-semester, summer session schedule; however, a student may begin his program at the beginning of any period. There are plans under consideration to admit students at any time, in certain skill training areas, to proceed at their own pace. Regular sessions are 16 to 17 weeks, summer sessions 10 weeks.

3. JOHN STENNIS VOCATIONAL COMPLEX is a small secondary vocational institution located about 22 miles from the Naval Air Station in DeKalb, Mississippi. It provides vocational training to local high school

students on a part-time, three hours per day basis, with some adult classes in the evening. Attendance is about 200 (days), 30 (evenings). Limited facilities are available for training with drafting, auto mechanics, construction electricity, and welding conducted in a single building. Due to the superior facilities provided by the junior colleges in the area, this school is not recommended for consideration. In addition, the school is presently at full capacity.

PENSACOLA, NAVAL AIR STATION AREA

There are two primary sources of vocational/technical training in the Pensacola area. They are the George Stone Vocational-Technical Center and Pensacola Junior College.

1. GEORGE STONE VOCATIONAL-TECHNICAL CENTER is located approximately 10 miles from the Naval Air Station. It was constructed and equipped, at a cost of approximately $1,600,000, as the first and second phase of a planned vocational-technical complex to supplement existing programs and thereby satisfy the needs of high school youths and adults for vocational training. At the present time, the Center is primarily engaged in training high school students during day sessions. These students are bused from their assigned high schools for this training. Young adult students are trained in evening sessions. The high school courses require 1080 hours for completion, which is accomplished in either one or two school years. Length of courses in the young adult program ranges from 500 to 1250 hours.

2. PENSACOLA JUNIOR COLLEGE is located on a 138-acre campus in northeast Pensacola near the municipal airport. It is accredited by the Southern Association of Colleges and Universities, American Association of Junior Colleges, and the Southern Association of Junior Colleges. The college has one of the most highly qualified faculties in the Florida Junior College System. The typical preparation of the academic teacher consists of graduate work beyond the master's degree; 53 faculty members hold an earned doctorate. Faculty of the vocational/technical division are highly trained specialists whose thorough knowledge of the occupation comes from both formal study and job experience. Recognizing that the student body of the junior college comes primarily from the local community, a special effort is made to provide them with exposure to a faculty representing other sections of the United States. To this end, the faculty is drawn from almost every state in the country and from more than 150 different colleges and universities.

MEMPHIS NAVAL AIR STATION AREA

The Memphis Area Vocational-Technical School and the State Technical Institute at Memphis are the principal sources of vocational/technical training in the Memphis area.

1. MEMPHIS AREA VOCATIONAL-TECHNICAL SCHOOL is a State-funded school operated by the Memphis Board of Education. It is designed to offer vocational and technical training courses to high school graduates and others 17 years of age or older. The school is accredited by the Southern Association of Colleges and Schools. The school is modern and well-equipped for technical/vocational training. It is located approximately 20 miles from the Memphis Naval Air Station. All courses are tuition-free; the only costs are for the purchase of textbooks, workbooks, and tools. Classrooms and workshops have been designed to approximate actual work situations and equipment used in industries. The maximum training time for most courses is 12 months; however, the training is individualized and self-paced, and most training is completed in six to nine months. The school is currently developing individualized packages for all courses, to include task analysis and specific behavioral objectives (SBOs). The school is working with the Federation of Regional Accrediting Commissions of Higher Education (FRACHE) to establish new standards for VOTEC training. This is an "open door" school, with no specific entrance requirements. However, General Aptitude Test Battery (GATB) pretesting and guidance counseling are used to assist students in selection of training. All students are given an exit interview, to determine success or deficiencies in the programs. Scheduling is unusually flexible; although there is a four-quarter system, a student may enter at any time and proceed at his own pace. Training is designed for entry-level employment, with limited proficiency--in effect, like apprentice training. Current instruction methods are described as "controlled OJT," with small groups. The school grants certificates for intermediate levels of completion and a diploma for course completion. No college credits are granted; however, an arrangement has been made with the local Shelby State Community College--an academic school--to grant credits in some areas. This system is expected to expand to all courses. The school operates six hours daily, five days per week. In addition, there are evening and Saturday classes. It is currently operating considerably under capacity, especially in trade and technical areas. One example is the instrumentation training, which has space available for more students. Of interest is the office machine repair course, related to the Navy instrumentation training curriculum. This is considered an excellent school with the necessary facilities, instructors, training techniques, and flexibility to support many Navy skill training requirements.

2. STATE TECHNICAL INSTITUTE AT MEMPHIS (STIM) is a two-year, fully accredited college level institution located on a 100-acre campus 17 miles from the Memphis Naval Air Station. It provides a broad curriculum leading to the Associate Degree in 11 technologies of engineering and business science. STIM was established by an act of the Tennessee Legislature in 1963. STIM's board of governance is the Tennessee State Board for Vocational Education. The Tennessee State Department of Education, Division of Vocational-Technical Education provides the

administrative support for the Institute. The Institute has been accredited by the Southern Association of Colleges and Schools (Commission on Colleges) since 1969. Seven curricula are professionally accredited by the Engineers' Council for Professional Development (ECPD). In 1971, it was selected as the only technical institute (of 12 colleges) to participate in the Navy's Associate Degree Completion Program (ADCOP). In 1972, it became a Charter Member of the Serviceman's Opportunity College. In 1973, it put into operation the first Associate Degree Program in Vocational Technical Education in the nation (a teacher training program). Most of the training is engineer-oriented and more heavily theoretical than is required for "A" School or apprentice training. However, training in Electrical and Electronic Maintenance and Repair, Instrumentation, and Production Technology does provide related curricula. Full-time students (registered for 12 or more credit hours) are charged the following rates for attendance at the State Technical Institute:

	Maintenance Fee	Tuition	Total
Tennessee Residents	$55.00	None	$ 55.00
Non-Residents	$55.00	$80.00	$135.00

Part-time students (registered for less than 12 credit hours) are charged the following:

Tennessee Residents	$5.00 per quarter hour Maintenance Fee
Non-Residents	$5.00 per quarter hour Maintenance Fee $7.50 per quarter hour Tuition

This is an excellent, highly qualified technical school and offers high potential for skill training at the journeyman or advanced level, with some facilities for apprentice training.

PEARL HARBOR NAVAL BASE AREA

VOTEC training in Hawaii is carried out as an integral part of the University of Hawaii. Four of the seven community colleges (Honolulu, Kapiolani, Leeward, and Windward) are on the main island of Oahu. These community colleges have both academic and vocational programs.

1. HONOLULU COMMUNITY COLLEGE occupies 20 acres near downtown Honolulu. Shops and laboratories, equipped with appropriate tools and supplies, are maintained for programs in over 20 trade-technical areas.

In addition to its main campus, Honolulu Community College has an Airport Campus which offers an Aviation Maintenance Technician program. This facility includes completely equipped shops which meet Federal Aviation Administration requirements.

Three other facilities are included as part of the Honolulu Community College. One is the Hawaii State Senior Center, located in the Kalihi-Palama area. This Center is education vice technical oriented. A second facility is the Palama Fire Station, located near the main campus and used for various activities connected with the College's Fire Science program. The third facility is the Kalihi-Palama Education Center which provides educational opportunities for adults over 16 years of age who cannot participate in other programs.

2. KAPIOLANI COMMUNITY COLLEGE has modern facilities arranged on a relatively small campus. Principal buildings include a two-story Business Education structure, a Food Service Education facility, and a Health Service Education classroom building. A number of small buildings serve as business and counseling offices, classrooms, and student government offices. This institution is using CAI in certain training programs.

3. LEEWARD COMMUNITY COLLEGE is located in Pearl City, Hawaii. Like all Hawaii community colleges, Leeward Community College offers both certificate and apprenticeship programs. These programs vary from one to two years in duration. Although these programs are predominantly technical/vocational oriented, academic programs are available.

JACKSONVILLE NAVAL AIR STATION AREA

Most public, post-secondary vocational/technical training in the Jacksonville area is provided by the four local campuses of Florida Junior College at Jacksonville. Naval installations adjacent to this institution include the Mayport Naval Base, NAS Cecil Field, and NAS Jacksonville. The four campuses of Florida Junior College are: the North Campus, the South Campus, the Downtown Center, and the Cumberland Campus. Present enrollment exceeds 40,000 students: 10,000 full-time, 30,000 part-time.

1. NORTH CAMPUS, located on a 160-acre campus about 15 miles from downtown Jacksonville, is the center for most VOTEC training. Further expansion of the facility is planned to accommodate 5000 full-time students. Seventy percent of the students on this campus are career-education oriented.

2. SOUTH CAMPUS is located on a 339-acre campus. It is capable of accommodating 2296 students in existing classrooms and laboratories. The master plan calls for two more major complexes similar to the existing complex, with the ability to serve 5000 full-time students. The South Campus is also the site of the Northeast Florida Criminal Justice Training and Education Center. It is designed to provide training for law enforcement agencies in an eight-county section of northeast Florida. This campus is located about 11 miles from the Mayport Naval Base. The curriculum is primarily academic and does not offer Navy-related technical training.

3. DOWNTOWN CENTER is located near the center of the downtown district of Jacksonville approximately 20 miles from the Mayport Naval Station. It operates during the day and the evening and can accommodate up to 1500 full-time students. The Center provides programs in science, social studies, communications, mathematics, and business education, ranging from basic education and high school studies to college credit programs.

4. CUMBERLAND CAMPUS is located on a 37-acre site. The only Navy related training at this location of interest to the study is business education. For this reason, this institution is not considered a likely candidate for Navy vocational/technical training.

5. MANPOWER DEVELOPMENT AND TRAINING CENTER offers a number of programs, the majority consisting of federally funded occupational-related programs which are initiated with close cooperation with other manpower training agencies in the city and the State Employment Service. In addition to the full-time day and evening center, Florida Junior College at Jacksonville also provides an extensive program of evening classes located in a number of senior high schools, junior high schools, elementary schools, community schools, churches, hospitals, and other institutions. College personnel expressed interest in providing training to military personnel, and mentioned several programs, including ADCOP, in which the college is currently providing similar training to Navy personnel. They offered full cooperation in establishing training programs as required and indicated that flexibility in curriculum content, time schedules, etc., could be arranged.

CHARLESTON NAVY BASE AREA

Post-secondary vocational/technical education in the Charleston area is primarily provided by Palmer College and Berkeley-Charleston-Dorchester Technical Education Center. On July 1, 1973, the Berkeley-Charleston-Dorchester Technical Education Center and Palmer College officially merged under the local supervision of the Area Commission. The merged institution operates as a member of the statewide system of two-year post-secondary technical education centers as Trident Technical College (Palmer Campus and North Campus).

1. PALMER CAMPUS specializes in business education at the junior college level. It is accredited by the Southern Association of Colleges and Schools. In recent years, the college expanded programs and enrollment in the areas of business, human services, and criminal justice.

2. NORTH CAMPUS (formerly Berkeley-Charleston-Dorchester Technical Education Center) was established to meet the needs of business and industry in the Charleston area. Heavy emphasis is placed on the engineering technologies and industrial crafts. The institution was accredited

by the Southern Association of Colleges and Schools in 1970. The shops and laboratories are furnished with the most modern technical equipment.

Instructional programs offered include air conditioning and refrigeration, auto body repair, automotive mechanic, industrial electricity, machine shop, civil engineering (surveying), data processing, electrical engineering technology, electronic engineering technology, industrial drafting technology, nuclear technology, radio and TV repair, tool and die making, welding, and commercial graphics. This institution is considered an excellent source for Navy skill training.

TABLE C-1. VOTEC SOURCES OF NAVY RELATED SKILL TRAINING

RATING	San Diego Area	Great Lakes Area	Orlando Area	Norfolk Area	Memphis Area
Lithographer	City College Evening College	Triton College	Mid-Florida Tech.	*Norfolk VOTEC Ctr.	Memphis Area VOTEC
Machinery Repairman	Evening College	Triton College Gateway Tech.	Mid-Florida Tech.	Norfolk VOTEC Ctr. Thos. Nelson College Norfolk State College	Memphis Area VOTEC
Yeoman "C"	City College Mesa College Evening College Grossmont College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Valencia College Seminole College	Norfolk State College Thos. Nelson College Norfolk VOTEC Ctr.	Memphis Area VOTEC
Builder	Evening College	Triton College Gateway Tech.	Seminole College	Norfolk VOTEC Ctr. Norfolk State College	Memphis Area VOTEC
Commissaryman	Mesa College Evening College	Triton College	Mid-Florida Tech.	Norfolk VOTEC Ctr. Norfolk State College	Memphis Area VOTEC
Construction Electrician	City College Evening College		Mid-Florida Tech.	Norfolk State College Norfolk VOTEC Ctr.	State Tech. Institute Memphis Area VOTEC
Construction Mechanic	City College Evening College Grossmont College	Triton College Gateway Tech.	Mid-Florida Tech.		Memphis Area VOTEC
Disbursing Clerk	City College Mesa College Evening College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Valencia College	Thos. Nelson College Norfolk State College Norfolk VOTEC Ctr.	State Tech. Institute Memphis Area VOTEC
Electrician's Mate	Evening College Grossmont College	Triton College Gateway Tech. Lake County College	Mid-Florida Tech. Seminole College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	State Tech. Institute Memphis Area VOTEC
Engineering Aid	Evening College	Gateway Tech. Lake County College	Valencia College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	State Tech. Institute

TABLE C-1. VOTEC SOURCES OF NAVY RELATED SKILL TRAINING (continued)

RATING	Jacksonville Area	Pensacola Area	Hawaii Area	Meridian Area	Charleston Area
Lithographer	Florida Jr. College	Pensacola Jr. College			
Machinery Repairman		Pensacola Jr. College	Honolulu College	Meridian College	Trident TEC College
Yeoman "C"	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Kapiolani College	Meridian College East Central College	
Builder	Florida Jr. College	Geo. Stone VOTEC Ctr.	Honolulu College		
Commissaryman	Florida Jr. College	Geo. Stone VOTEC Ctr.	Kapiolani College		
Construction Electrician	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College	Meridian College East Central College	Trident TEC College
Construction Mechanic	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr	Honolulu College		Trident TEC College
Disbursing Clerk	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Kapiolani College Leeward College		
Electrician's Mate	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College	Meridian College East Central College	Trident TEC College
Engineering Aid	Florida Jr. College	Pensacola Jr. College	Honolulu College		Trident TEC College

TABLE C-1. VOTEC SOURCES OF NAVY RELATED SKILL TRAINING (continued)

RATING	Jacksonville Area	Pensacola Area	Hawaii Area	Meridian Area	Charleston Area
Engineman	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College		Trident TEC Col.
Equipment Operator					
Illustrator Draftsman	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College Leeward College	Meridian College East Central College	
Interior Communications Electrician	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.		East Central College	
Machinist's Mate	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College		Trident TEC Col.
Molder					
Pattern Maker					Trident TEC Col.
Ship's Serviceman		Pensacola Jr. College Geo. Stone VOTEC Ctr.	Leeward College		
Steelworker	Florida Jr. College	Pensacola Jr. College	Honolulu College	East Central College	Trident TEC Col.
Steward	Florida Jr. College	Geo. Stone VOTEC Ctr.	Kapiolani College		
Storekeeper		Pensacola Jr. College	Kapiolani College		

TABLE C-1. VOTEC SOURCES OF NAVY RELATED SKILL TRAINING (continued)

RATING	San Diego Area	Great Lakes Area	Orlando Area	Norfolk Area	Memphis Area
Engineman	City College Evening College	Triton College Gateway Tech.	Mid-Florida Tech.		
Equipment Operator					
Illustrator Draftsman	City College Evening College Grossmont College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Valencia College Seminole College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	State Tech. Institute Memphis Area VOTEC
Interior Communications Electrician	Evening College Grossmont College	Gateway Tech. Triton College		Norfolk State College Thos. Nelson College	State Tech. Institute Memphis Area VOTEC
Machinist's Mate	City College Evening College	Triton College Gateway Tech.	Mid-Florida Tech. Seminole College	Norfolk VOTEC Ctr. Thos. Nelson College	Memphis Area VOTEC
Molder		Triton College			
Pattern Maker	Evening College				
Ship's Serviceman	Evening College	Lake County College Gateway Tech. Triton College		Norfolk State College	
Steelworker	Evening College	Triton College Gateway Tech.	Mid-Florida Tech. Seminole College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	
Steward	Mesa College Evening College	Triton College	Mid-Florida Tech.	Norfolk VOTEC Ctr. Norfolk State College	Memphis Area VOTEC
Storekeeper	City College Mesa College Evening College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Seminole College	Norfolk State College	

TABLE C-2. VOTEC INSTITUTIONS OFFERI

BASE: GREAT LAKES NAVAL BASE
GREAT LAKES, IL 60088

				SELECTED					
			CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man	
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	NEC	3600	4400	2514	5900	3000	56
			DOD	740	702	510	710	800	7
Triton College River Grove, Illinois	35 mi. (60-75) min.	Public Community College/ Technical Institute. 86 acres, 12 new buildings, 534,416 sq. ft. 104 career programs.		X	X	X	X	X	
Gateway Technical Institute Kenosha - Racine, Wisconsin	25-35mi. 30 min.	2 nearby campuses Kenosha: 50 acres, 4 modern buildings, 120,000 sq. ft. 4,000 technical course offerings.			X	X	X		
College of Lake County Grayslake, Illinois	11 mi. 15 min.	230 acres, interim facilities during major construction.				X			
William Rainey Harper College Palatine, Illinois	25 mi. 40 min.	9 modern buildings on 210 acres. 11,000 total enrollment.				X			

IONS OFFERING NAVY-RELATED CURRICULA

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X	X		X	X	X		X		X	X	X	X		X	X	X	X
X			X	X	X	X	X		X	X	X			X	X		X
				X	X	X			X					X			X
				X	X	X			X	X							X

TABLE C-2. VOTEC INSTITUTIONS OFFERING N

BASE: ORLANDO NAVAL TRAINING CENTER
ORLANDO, FL 32813

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commis Ma
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Mid-Florida Technical Institute 2900 West Oak Ridge Road Orlando, Florida 32809	10 mi	An Area Vocational School accredited by Florida State Dept. of Education. Has 5 air conditioned buildings, total classroom area of 175,000 square feet, 13 shops, 38 classrooms, 4 laboratories, 3 drafting rooms on 140 acre campus. Additional buildings under development.		X	X	X		X
Valencia Community College 1800 S. Kirkman Road Orlando, Florida 32811	10 mi	Community College accredited by Florida State Dept. of Education and Southern Association of Colleges and Schools. Modern campus opened 1971. Military personnel stationed in Florida considered residents for tuition.				X		
Seminole Junior College Sanford, Florida 32771	15 mi	Public Junior College accredited by Florida State Dept. of Education and Southern Association of Colleges and Schools. 170 acre campus. Phase I completed 1970. Incorporates area vocational school.				X	X	

OFFERING NAVY-RELATED CURRICULA (continued)

	PROPOSED CANDIDATES																	
	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
		X	X	X	X	X		X		X		X				X	X	X
					X		X			X								
	X					X				X		X				X		X

TABLE C-2. VOTEC INSTITUTIONS OFFERING NAV

BASE: SAN DIEGO NAVAL BASE
SAN DIEGO, CA 92132

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
SAN DIEGO COMMUNITY COLLEGES: 1. San Diego City College	3 mi	All colleges accredited by California State Dept. of Education and Western Association of Schools and Colleges. Active military personnel are exempt from Tuition.		X		X		
2. San Diego Mesa College 7250 Artillery Drive	10 mi					X		X
3. San Diego Evening College	Variable Locations	Classes are conducted at above campuses and at some other 56 sites*, including Naval facilities.		X	X	X	X	X
4. Grossmont College El Cajon, Calif.	12 mi	135-acre campus, built 1964. Offers career vocational programs at post-secondary level.				X		

* Mostly apprentice programs

OFFERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
		X	X	X			X		X		X						X
	X			X												X	X
X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X
			X		X				X	X							

TABLE C-2. VOTEC INSTITUTIONS OFFERING NAVY

BASE: NORFOLK NAVAL BASE
NORFOLK, VA 23511

				SELECTED				
			CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Norfolk State College 2401 Corprew Avenue Norfolk, Virginia 23504	12 mi	SACSS accredited 4-year college. 100 acre campus. 11 modern, well-equipped buildings. Machine shop and foundry under construction. Dormitory space.			X	X	X	X
Norfolk Vocational Technical Center 1300 Military Highway Norfolk, Virginia 23502	8 mi	Public Secondary/Adult Vocational School. Modern construction (1968). 30 acre campus, 126,000 sq. ft. space. Excellent, well-equipped classrooms, workshops, labs. Well-qualified instructors. SACSS accredited.		X	X	X	X	X
Tidewater Community College (Frederick) Portsmouth, Virginia	25 mi (40 min)	SACSS approved community college. 750 acre rural campus. Buildings date from WWI, formerly Navy/Marine. Large warehouse contains technical labs, classrooms, and workshops. Program of expansion in planning stage.				X		
Thomas Nelson Community College Hampton, Virginia 23366	15 mi (30 min)	SACSS accredited community college. 2 modern buildings, plus 1 under construction, on 38 acre campus. New Engineering Science building planned. Data links to 4 computers.			X	X		

FERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X	X	X		X	X	X			X					X	X	X	X
X	X	X		X	X	X			X		X				X	X	
				X	X				X								
				X	X	X			X		X				X		

TABLE C-2. VOTEC INSTITUTIONS OFFERING

BASE: MERIDIAN NAVAL AIR STATION
NAVAL TECHNICAL TRAINING CENTER ("STENNIS CENTER")
MERIDIAN, MISSISSIPPI

				SELECTED				
			CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissa Man
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Meridian Junior College Meridian, MS 39301	18 mi. (30 min)	A SACSS-accredited Junior College. 4 modern buildings on 27 acre campus. Offers 9 vocational and 5 technical programs.			X	X		
East Central Junior College Decatur, MS	40 mi. (60 min)	A SACSS-accredited Junior College. 27 buildings of various ages, including 4 male, 2 female dorms on 200 acres. 7 vocational and 4 technical programs offered.			X	X		
John Stennis Vocational Complex DeKalb, MS	22 mi. (30 min)	A small, single structure, secondary vocational school. Some adult students in evening. Limited facilities for a few skills.						

S OFFERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
		X	X		X		X		X	X	X						
		X	X		X		X		X	X	X				X		
		X	X						X								

TABLE C-2. VOTEC INSTITUTIONS OFFERING NAVY

BASE: PENSACOLA NAVAL AIR STATION
PENSACOLA, FL 32508

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commiss Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
George Stone Vocational Technical Center Pensacola, Florida	10 mi	A Technical-Vocational complex for high school and adult students. SACSS-accredited. Awards certificates.			X	X	X	X
Pensacola Junior College Pensacola, Florida		A 2-year SACSS-accredited Junior College. Campus consists of 23 buildings valued at $21 million on 118 acres in NE Pensacola. Offer associate degree and certificate programs.		X	X	X		

FERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissaryman	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X	X	X	X	X	X		X		X	X	X			X		X	
		X	X	X	X	X	X		X	X	X			X	X		X

TABLE C-2. VOTEC INSTITUTIONS OFFERING

BASE: MEMPHIS NAVAL AIR STATION
MILLINGTON, TN 38054

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commiss Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
State Technical Institute at Memphis 5983 Macon Cove Memphis, Tennessee 38128	17 mi. 40 min.	A SACSS-accredited Technical Institute. A multi-million dollar facility completed 1968. Vocational-Technical training, with associate degrees and certificates.						
Memphis Area Vocational-Technical School 620 Mosby Avenue Memphis, Tenn. 38105	20 mi. 30 min.	A SACSS-approved post-secondary school offering vocational and technical training. Operates in a well designed modern structure on 7 acres in downtown Memphis. Very flexible self-paced entry level training.		X	X	X	X	X

OFFERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
		X		X	X	X			X	X							
X	X	X	X	X	X				X	X	X					X	

TABLE C-2. VOTEC INSTITUTIONS OFFERING NAV

BASE: JACKSONVILLE NAVAL AIR STATION
JACKSONVILLE, FL 32212

				SELECTED				
			CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commiss Man
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Florida Junior College at Jacksonville Jacksonville, Florida	20-30 miles	A SACSS-accredited community college with 4 campus sites in Jacksonville. Total enrollment in excess of 40,000. Most technical training at new North Campus. Downtown center being developed. Some Navy programs under way.		X		X	X	X

FERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X	X	X	X	X	X	X	X		X	X	X				X	X	

TABLE C-2. VOTEC INSTITUTIONS OFFERING NAVY-

BASE: U. S. NAVAL BASE
CHARLESTON, S.C.

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissa Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Trident Technical College								
North Campus (B.C.D. TEC) 7000 Rivers Avenue N. Charleston, S.C. 29406	3½ mi. (15 min)	Accredited member of State system of 2-year post-secondary, technical education centers. Heavy emphasis on engineering technologies and industrial crafts. Modern, well-equipped campus.			X			
Palmer Campus 125 Bull Street Charleston, S.C. 29401	7 mi. (25 min)	Specializes in business education at the Junior College level.				X		

ERING NAVY-RELATED CURRICULA (continued)

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
		X	X		X	X	X		X		X		X		X		
														X			

TABLE C-2. VOTEC INSTITUTIONS OFFERING N

BASE: PEARL HARBOR			CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commis Ma
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Honolulu Community College Honolulu, Hawaii	10 mi.	An accredited community college: 25 buildings on a 20-acre campus. Shops and Labs for over 20 trade and technical areas			X		X	
Kapiolani Community College Honolulu, Hawaii	8 mi.	Modern facilities on small campus. Principal buildings for business education, food service education, health service.				X		X
Leeward Community College Pearl City, Hawaii	5 mi.	A complex of modern buildings, including Drafting and Automotive, General Technology, Business and Education, et.al.				X		

OFFERING NAVY-RELATED CURRICULA (continued)

D	PROPOSED CANDIDATES																		
an "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
4	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
0	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
	X		X	X		X	X	X		X		X				X		
		X			X												X	X
					X					X					X			

APPENDIX D

COST DATA SURVEY QUESTIONNAIRE

GENERAL COMMENTS

1. The following forms are to be used in conducting a cost analysis to establish baseline information on the total cost of training. We are primarily interested in these costs for long-run planning purposes. Consequently, we define total costs to not only include the flow of funds which occur during the short run but also to include charges made for the stocks (capital investments) of resources employed in training. Much of the data on the following forms deal with those stocks, and often data are not readily available to answer the questions. In many instances estimates must be made. It is requested that an effort be made to answer all questions, drawing on whatever information is available to improve the quality of the estimate.

2. The unit on which data are being collected is the course, and often costs are incurred in training which cannot be totally attributed to each course. Such costs should be prorated across courses served according to student man-hours of instruction. Do not, in any case, go beyond the school in developing the costs.

3. You may follow one of two general approaches in filling out the forms depending upon your particular situation.

The first approach requires that you allocate to each course its share of all direct and indirect costs (data) incurred through and including the school headquarters.

A second approach can be followed where unique headquarters can be identified. The second approach will not require prorating of headquarters data. Instead. aggregate data are provided for each headquarters, and the headquarters for which each course is administratively under are identified.

For example, assume you are asked to cost out course C1. Using the first approach you would determine all direct costs of the course and prorate all other costs and/or data through and including school headquarters. This means that data for school headquarters, headquarters A, and headquarters A1 would be prorated on basis of total instructional hours. Prorating factors for school headquarters would be C1/(C1+C2+iii+C12); for headquarters A, C1/(C1+C2+C3+C4); and, for headquarters A1, C1/(C1+C2).

Using the second approach you could complete two headquarters forms--one for the school headquarters and one for headquarters A. Then you should ignore these headquarters in developing data for the course and only develop the data up through headquarters A1. The second method will be especially useful for those instances where several courses must be costed out under the same headquarters since the headquarters form only need be completed once.

DIRECTIONS

1. The objective of this form is to obtain the total yearly (long-range) cost of development and maintenance of instructional courseware (material).

2. Instructional courseware is the information bearing material presented through each media. Examples: lecture notes or script, a motion picture film, TV script, software for CAI, textbook.

3. If the development of a particular piece of courseware was by contract then use the contract price as the basis of determining the development costs.

4. Certain types of courseware may have zero development costs. Example: a standard text which was not uniquely developed for this course and which is readily available on the open market.

5. NOTE: Courseware DOES NOT include any hardware used in presentation. Example: the film used in a motion picture projector is courseware but the projector is not courseware.

HEADQUARTERS

Name of Headquarters____

I. Personnel

Officers: Average Grade__________ Number__________
Enlisted: Average Grade__________ Number__________
Civilian: Average Grade__________ Number__________

II. Facilities*

What is the total sq. ft. occupied?__________sq. ft.
Briefly describe the building(s).______________________________

____

____

III. Equipment* (nonexpendable)

Office Furniture: Average Age________ Approximate total acquisition cost________
Other: Average Age________ Approximate total acquisition cost_____

IV. Miscellaneous

What was the FY 73 expenditures for supplies and expendable equipment?*
____

What was the number of students passing through all courses administratively under this headquarters (FY 73)____________________

What was the total number of student instructional man-hours for all courses administratively under this headquarters (FY 73)__________

List other expenses (with amounts) not covered above.*
Item________________________ $__________________________
Item________________________ $__________________________

*Include only data for headquarters office.

NAVY/MARINE CORPS TRAINING COST ANALYSIS

COURSE DATA

Course Title________________

1. Location________________________ Zip Code____________
2. School____
3. Course length_____________Weeks
4. Total student hours of instruction in course__________Hours
5. Number of courses conducted each year_____________Number
6. Maximum student capacity per course_____________Number Per Year
7. Student input (FY 73)____________Number Per Year
8. Student output (FY 73)____________Number Per Year
9. Job title____
10. MOS(s) supported_______________________________________

____

Will the course data include a prorated share of all headquarters office expenses? (Yes____ No____)

If no, then indicate below the name of all headquarters which this course is administratively under. Starting with the school administration, list all in order of their position in the administrative hierarchy.

1.

2.

3.

4.

PERSONNEL

Course Title____________________

Personnel	Man Weeks	Average Grade	Miscellaneous Personnel Expenses
Instructors Officers			
Enlisted			
Civilian			
Administration and Instructional Support Officers			
Enlisted			
Civilian			

1. Instructors: Include those individuals who monitor, supervise, or teach in a classroom or laboratory situation. Include all their time except that spent in developing and revising course material.
2. Administration and Instructional Support: Include librarians, budget personnel, directors, clerks and typists, equipment operators, and all others not excluded by item 3 below.
3. Do not include in personnel data those individuals (a) performing maintenance on the facilities, (b) the time of individuals developing and updating course material, (c) those individuals who maintain and operate nonexpendable equipment.
4. Miscellaneous Personnel Expenses: Include TAD, travel, etc. DO NOT include salary, wages, or personnel overhead charges such as retirement costs, housing costs, etc.
5. Where data must be prorated do so on the basis of student instructional hours.

FACILITIES (INDOOR)

Course Title______________

Space	Sq Ft	Age Yrs	Good Fair Poor	Brick Block Frame Steel
Laboratory				
Classroom				
Instructional Support				
Offices				
Other				
Total				

1. Do not include space and equipment devoted to development and updating of instructional material. These data will be included on a following form.
2. If any space is used by more than one course or used in support of more than one course then prorate to this course a proportion equal to the student man-hours of instruction for the course divided by the total of all student man-hours of instruction supported by the facility.
3. Include only those facilities which are used by the school for instruction or in support of the school. Do not go beyond the school administration. DO NOT include mess halls, barracks,

OUTDOOR TRAINING AREAS

Course Title__________________

Area	Acres	Current Value of Land
Outdoor Training Areas		
Other		

1. Estimate on the basis of current local nonmilitary land values.

2. If area is used by more than one course or for other purposes, then prorate the area on the basis of total use.
   Example: A 10-acre tract used equally for a training area for heavy equipment operators and a surveying course would be prorated by assigning 5 acres to each course.

EQUIPMENT (NONEXPENDABLE)

Course Title__________________

Equipment	Total New Cost	Normal Life	Yearly Maint.	Current Salvage Value
Operational Equipment* Used in Training				
Tools and Test Equipment				
Simulators				
Procedure Trainers				
Component Parts				
Student Carrels				
Models & Mockups				
Audio-Visual Equip.				
Office Equipment				
Classroom Furniture				
Other				

*Is the operation equipment used for training still in the inventory of the operational forces? Yes___ No___

1. You may group minor equipment items and present "average" life data.
2. If any equipment is used by more than one course or in support of more than one course, then prorate a proportion of the value to this course equal to the student man-hours of instruction for the course divided by the total of all instructional hours supported.
3. In yearly overhead and maintenance costs, include all material and personnel costs. Add ____ percent to military personnel wages and salaries for personnel overhead. Add ____ percent to civilian wages and salaries for personnel overhead.
4. Audio-visual equipment includes only the hardware and not the courseware.
5. Estimate current salvage value on the basis of potential value in the market economy.

STUDENTS

Course Title__________________

Expenditure Class	Expenditures/Yr (All Students)
Wages and Salaries	
Travel and Temporary Duty Allowance[1]	
Subsistence	
Other	

---

[1] Include only travel and temporary duty allowance incurred as part of the course.

SUPPLIES & EQUIPMENT (EXPENDABLE)

Course Title________________

Type	Total Expenditures Per Yr (FY 73)
Office Supplies	
Instruction Supplies	
Student Supplies	
Other	

1. Prorate according to student instructional hours where necessary.
2. Instruction supplies include reproduction costs and/or copy costs of films, textbooks, lab manuals, etc. DO NOT include development and updating costs.

DEVELOPMENT OF INSTRUCTION MATERIAL

Course Title______________________

Type of Material (Courseware)	Hours of Instructional Use for Which Development Costs are Incurred	Development Costs Per Hour of Instructional Use		Life Expectancy	Annual Update Cost
		Man Hours	Dollars		
Lesson Plans					
Textbooks					
Lab Manuals					
Films					
Sound Slide Programs					
CAI Software					
TV & Radio Scripts					
Handouts					
Transparencies (10 x 10)					
Programmed Instruction Lessons					
Tests					

Comments:

APPENDIX E

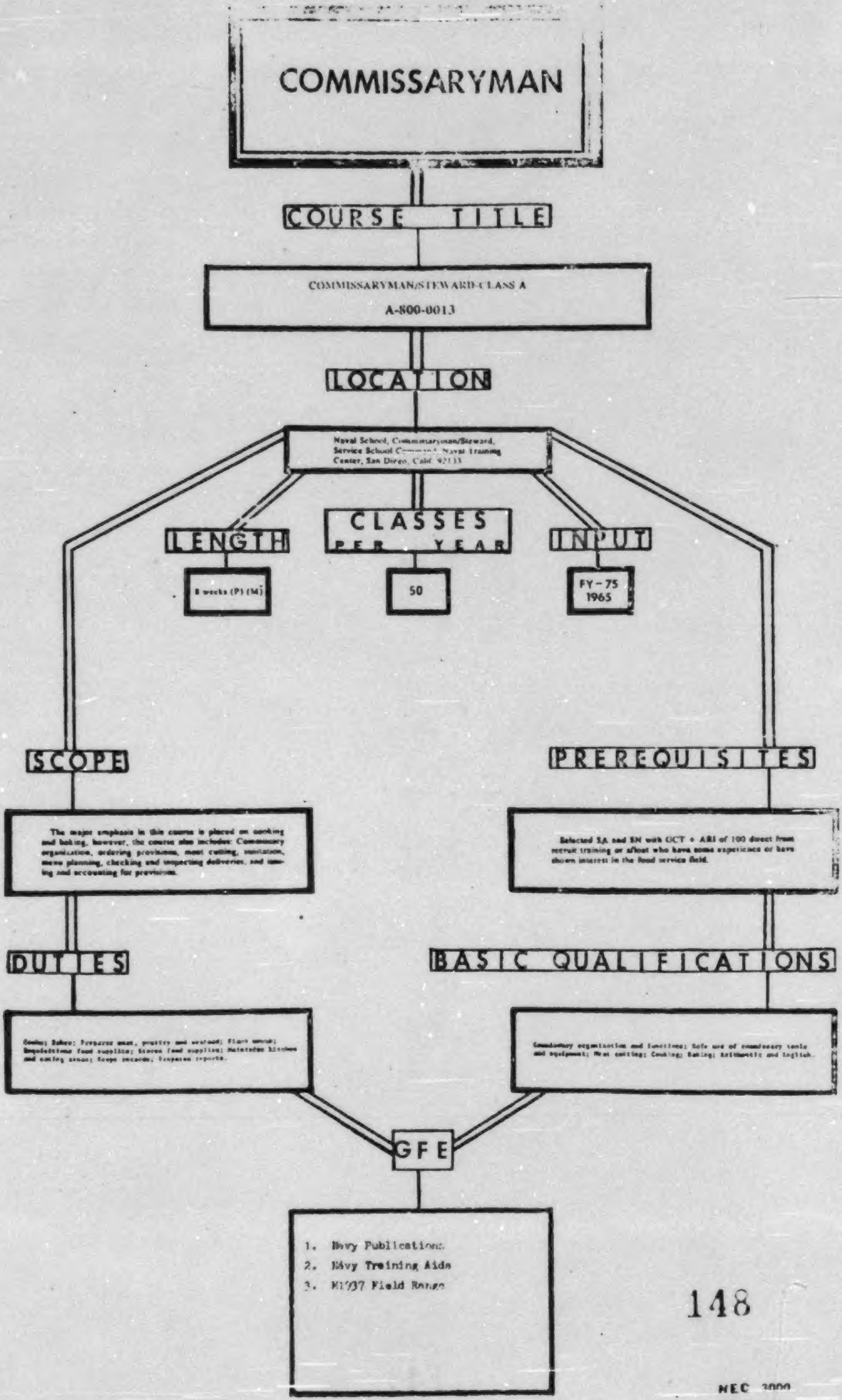
NEC SKILL TRAINING CHARTS

NAVY TRAINING & LOCATION

1. BUILDER	Naval Schools Construction, Port Hueneme, Calif. Naval School, Civil Engineer Corps Officers, Port Hueneme, Calif. Naval Schools Construction, Davisville, Rhode Island
2. COMMISSARYMAN	Naval School, Commissaryman/ Steward, Service School Command, Naval Training Center, San Diego, Calif. 92133
3. CONSTRUCTION ELECTRICIAN	Naval Schools Construction, Port Hueneme, Calif. Naval Schools Construction, Davisville, Rhode Island
4. CONSTRUCTION MECHANIC	Naval Schools Construction, Port Hueneme, Calif. 93401 Naval Schools Construc[illegible], Davisville, Rhode Island
5. DATA SYSTEM TECHNICIAN	Naval School, Data Systems Technician, Class A, Naval Schools Command, Mare Island, Vallejo, Calif. 94592
6. DISBURSING CLERK	Naval School, Disbursing Clerks, Service School Command, Naval Training Center, San Diego, Calif. 92133
7. ELECTRICIAN'S MATE	Naval School, Electrician's Mates, Class A, Service School Command, U.S. Naval School, Electrician's Mates Class A, Service School Command, Naval Training Center, Great Lakes, Illinoi
8. ELECTRONICS TECHNICIAN	Service School Command Naval Training Center San Diego, Calif. 92133 Service School Command Naval Training Center Great Lakes, Illinois 60088 U.S. Naval School, Electronics Technician, Class A, Naval Schools Command Treasure Island, San Francisco, California 94130 U.S. Naval School, Electronics Technician, Class A, Service School Command, U.S. Naval Training Center, Great Lakes, Illinois U.S. Naval School, Electronics Technician, Class A, Naval Schools Command Treasure Island, San Francisco, California 9413 U.S. Naval School, Electronics Technician, Class A, Service School Command, U.S. Naval Training Center Great Lakes, Illinois 60088
9. ENGINEERING AIDE	Naval Schools Construction, Port Hueneme, California Naval School Construction, Davisville, Rhode Island
10. ENGINEMAN	Propulsion Engineering Schools, Service School Command, Naval Training Center, Great Lakes, Illinois 60088
11. EQUIPMENT OPERATOR	Naval Schools Construction, Port Hueneme, California Naval Schools Construction, Davisville, Rhode Island
12. ILLUSTRATOR DRAFTSMAN	No Formal Training - OJT

NAVY TRAINING BY LOCATION

13. INSTRUMENTMAN	Naval School, Instrumentman, Class A, Service School Command, Naval Training Center, Great Lakes, Illinois 60088
14. INTERIOR COMMUNICATIONS ELECTRICIAN	Naval School, IC Electricians, Class A, Service School Command, San Diego, Calif.
15. JOURNALIST	Defense Information School, Fort Benjamin Harrison, Indianapolis, Indiana 46216
16. LITHOGRAPHER	No formal training - OJT. Tri-Service training in Lithography is available at Defense Mapping School, Fort Belvoir, Virginia
17. MACHINERY REPAIRMAN	Naval School, Machinery Repairman, Class A, Service School Command San Diego, Calif. 92133
18. MACHINIST'S MATE	Propulsion Engineering Schools, Service School Command, Naval Training Center, Great Lakes, Illinois 60088
19. MOLDER	Naval Development and Training Center, Naval Station, San Doego, Calif. 92136
20. PATTERNMAKER	Naval Development and Training Center, Naval Station, San Diego, Calif. 92136
21. SHIP's SERVICEMAN	No Formal Training - OJT
22. STEELWORKER	Naval Schools Construction, Port Hueneme, California Naval Schools Construction, Davisville, Rhode Island
23. STEWARD	Naval School, Commissaryman/Steward Service School Command, Naval Training Center, San Diego, Calif., 92133
24. STOREKEEPER	Naval School, Storekeepers, Service School Command, Naval Training Center, San Diego, California 92133
25. YEOMAN A	U.S. Naval School, Yeoman/Personnelman Service School Command, U.S. Naval Training Center, San Diego, Calif. U.S. Naval School, Yeoman/Personnelman, Service School Command, U.S. Naval Training Center, Orlando, Fla. 32813
26. YEOMAN C	Fort Benjamin Harrison, Indiana, 46216



COMMISSARYMAN

COURSE TITLE

COMMISSARYMAN/STEWARD-CLASS A
A-800-0013

LOCATION

Naval School, Commissaryman/Steward, Service School Command, Naval Training Center, San Diego, Calif. 92133

LENGTH

8 weeks (P) (M)

CLASSES PER YEAR

50

INPUT

FY-75
1965

SCOPE

The major emphasis in this course is placed on cooking and baking, however, the course also includes: Commissary organization, ordering provisions, meat cutting, sanitation, menu planning, checking and inspecting deliveries, and issuing and accounting for provisions.

PREREQUISITES

Selected SA and SN with GCT + ARI of 100 direct from recruit training or afloat who have some experience or have shown interest in the food service field.

DUTIES

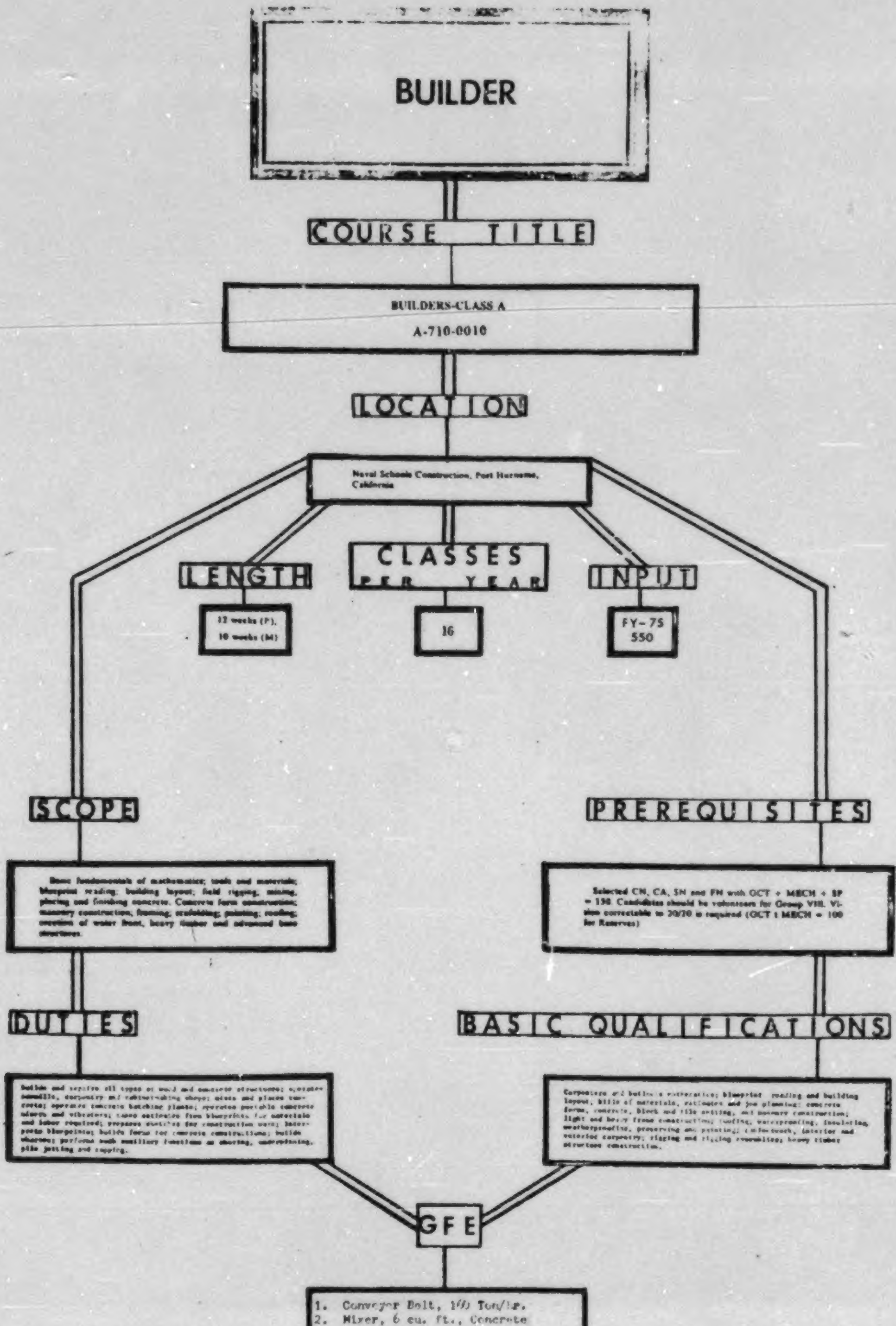
Cooks; Bakes; Prepares meat, poultry and seafood; Plans menus; Requisitions food supplies; Stores food supplies; Maintains kitchen and eating areas; Keeps records; Prepares reports.

BASIC QUALIFICATIONS

Commissary organization and functions; Safe use of commissary tools and equipment; Meat cutting; Cooking; Baking; Arithmetic and English.

GFE

1. Navy Publications
2. Navy Training Aids
3. M1937 Field Range



BUILDER

COURSE TITLE

BUILDERS-CLASS A

A-710-0010

LOCATION

Naval Schools Construction, Port Hueneme, California

LENGTH

12 weeks (P),
10 weeks (M)

CLASSES PER YEAR

16

INPUT

FY-75
550

SCOPE

Basic fundamentals of mathematics; tools and materials; blueprint reading; building layout; field rigging; mixing, placing and finishing concrete. Concrete form construction; masonry construction, framing; scaffolding; painting; roofing; erection of water front, heavy timber and advanced base structures.

PREREQUISITES

Selected CN, CA, SN and FN with GCT + MECH + SP = 150. Candidates should be volunteers for Group VIII. Vision correctable to 20/20 is required (GCT + MECH = 100 for Reserves)

DUTIES

Builds and repairs all types of wood and concrete structures; operates sawmills, carpentry and cabinetmaking shops; mixes and places concrete; operates concrete batching plants; operates portable concrete mixers and vibrators; makes estimates from blueprints for materials and labor required; prepares sketches for construction work; interprets blueprints; builds forms for concrete construction; builds wharves; performs such auxiliary functions as shoring, underpinning, pile jetting and capping.

BASIC QUALIFICATIONS

Carpentry and builder's mathematics; blueprint reading and building layout, bills of materials, estimates and job planning; concrete forms, concrete, block and tile setting, and masonry construction; light and heavy frame construction; roofing, waterproofing, insulating, weatherproofing, preserving and painting; cabinetwork, interior and exterior carpentry; rigging and rigging assemblies; heavy timber structure construction.

GFE

1. Conveyor Belt, 100 Ton/hr.
2. Mixer, 6 cu. ft., Concrete
3. Vibrator, 28 ft., Concrete
4. Compressor, 315 CFM
5. Pile Driving Equipment
6. Tent, 16 ft. by 32 ft.
7. Butler Hut, 20 ft. x 48 ft.

149

NEC 5900
DOD 710
CURRICULUM

CONSTRUCTION ELECTRICIAN

COURSE TITLE

CONSTRUCTION-ELECTRICIANS-CLASS A

A-721-0018

LOCATION

Naval Schools Construction, Port Hueneme, California

LENGTH

11 weeks (P) (M)

CLASSES PER YEAR

17

INPUT

FY-75
350

SCOPE

Principles and Operating Characteristics of motors, generators, transformers, reading of electrical blueprints (circuit diagrams); telephone communications; interior wiring, pole line construction and power distribution.

PREREQUISITES

Selected CN, CA, SN and FN with GCT + MECH + SP = 156. Candidates should be volunteers for Group VIII. Vision correctible to 20/20 with normal color perception. (ARI + MECH = 105 for Reserves) Must have successfully completed the Basic Electricity and Electronics Course.

DUTIES

Installs high and low voltage power lines and underground electrical systems; installs and repairs public address, telephone, interoffice, and fire alarm systems; installs and repairs conduit; troubleshoots electrical and communications failures; installs and maintains electrical motors and transformers; installs and maintains storage and dry cell batteries; works with electrical tools and testing equipment; performs duties in powerplant control rooms.

BASIC QUALIFICATIONS

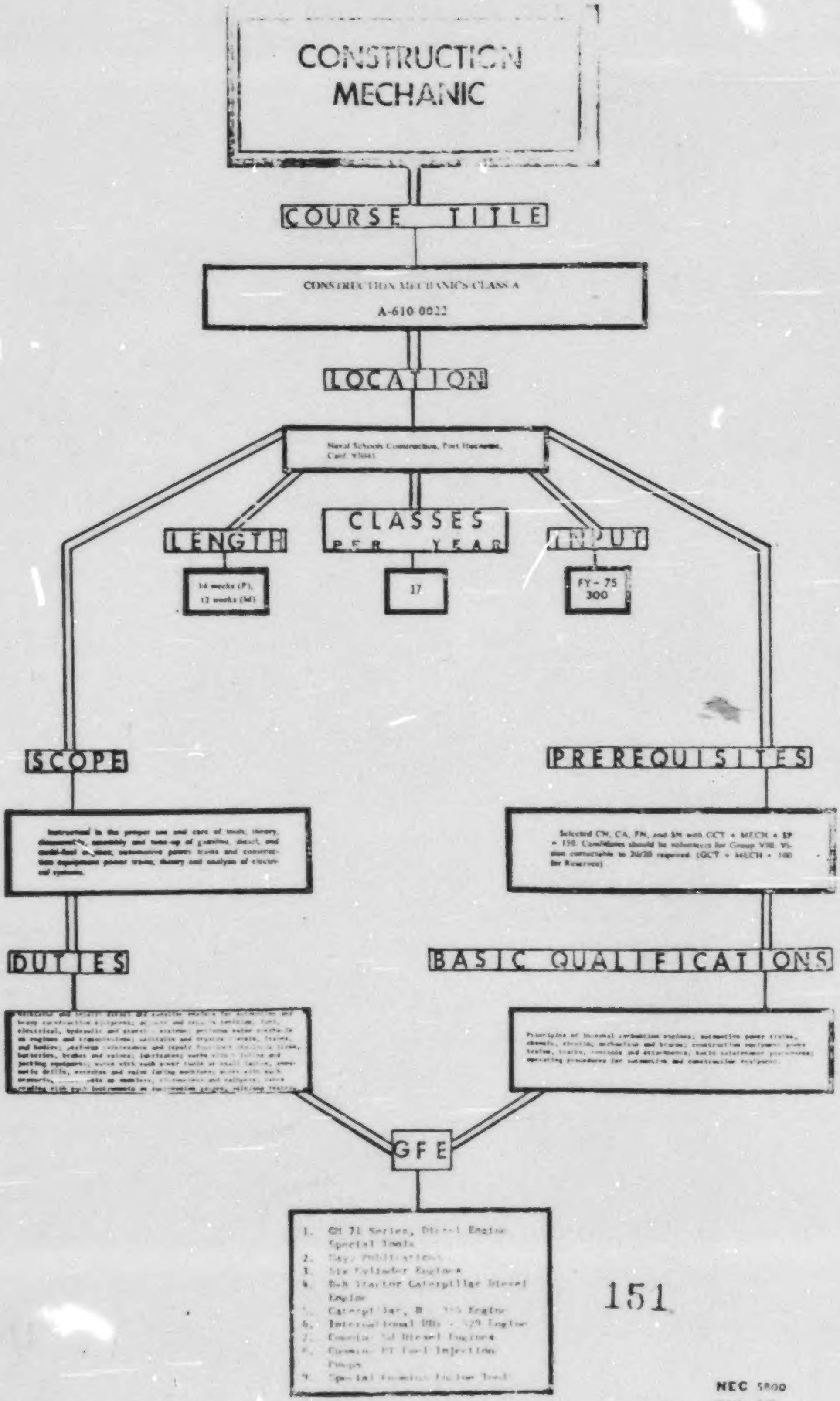
Basic theory of electricity; Motors and generators; Wiring; Electrical construction tools and materials; Erection of pole line and electric power systems; Electrical communications systems.

GFE

NONE

150

NEC 5600
POD 721
CURRICULUM



CONSTRUCTION MECHANIC

COURSE TITLE

CONSTRUCTION MECHANICS CLASS A

A-610-0022

LOCATION

Naval Schools Construction, Port Hueneme, Calif. 93043

LENGTH

14 weeks (P),
12 weeks (M)

CLASSES PER YEAR

17

INPUT

FY - 75
300

SCOPE

Instruction in the proper use and care of tools; theory, disassembly, assembly and tune-up of gasoline, diesel, and multi-fuel engines; automotive power trains and construction equipment power trains; theory and analysis of electrical systems.

PREREQUISITES

Selected CN, CA, FN, and SN with GCT + MECH + SP = 150. Candidates should be volunteers for Group VIII. Vision correctable to 20/20 required. (GCT + MECH = 100 for Reserves)

DUTIES

[illegible] and repairs [illegible] and [illegible] for automotive and heavy construction equipment; adjusts and repairs ignition, fuel, electrical, hydraulic and steering systems; performs major overhauls on engines and transmissions; maintains and repairs [illegible], frames, and bodies; performs maintenance and repair [illegible] lines, batteries, brakes and valves; lubricates; works with [illegible] and jacking equipment; works with such power tools as small lathes, pneumatic drills, grinders and valve facing machines; works with such measuring [illegible] as micrometers, [illegible] and calipers; takes readings with such instruments as compression gauges, voltage testers

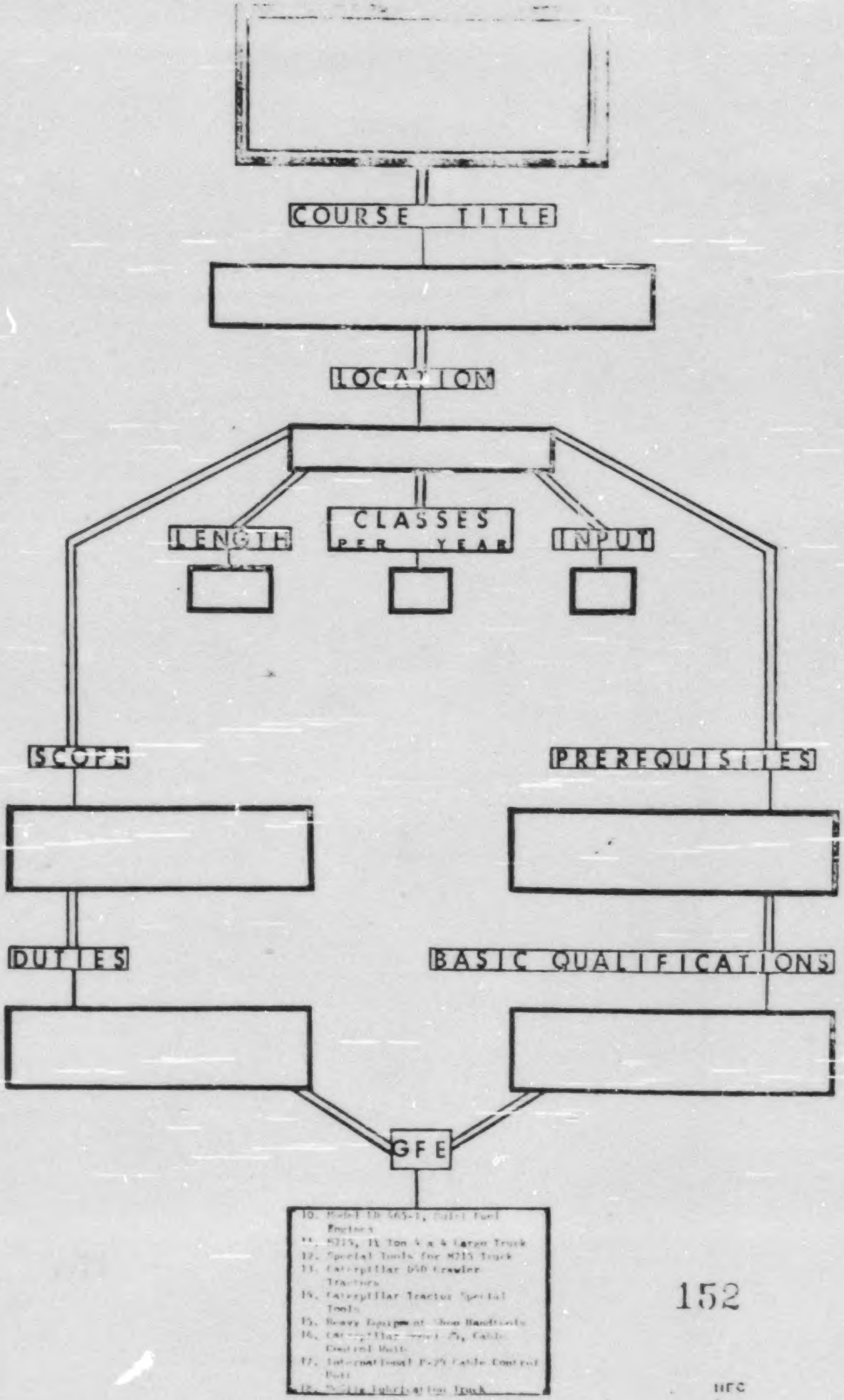
BASIC QUALIFICATIONS

Principles of internal combustion engines; automotive power trains, chassis, electric, mechanical and brakes; construction equipment power trains, tracks, controls and attachments; basic maintenance procedures; operating procedures for automotive and construction equipment.

GFE

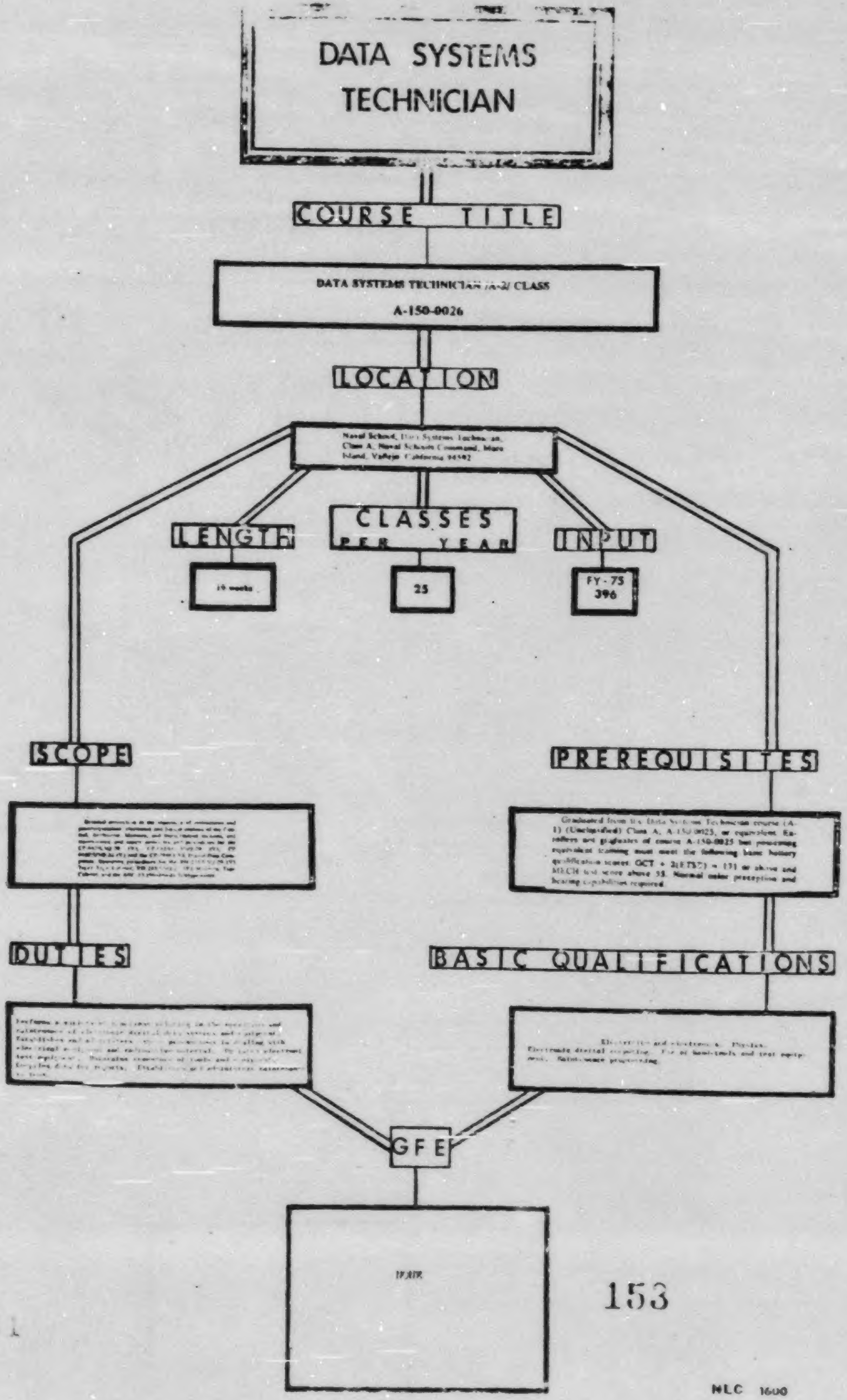
1. GM 71 Series, Diesel Engine Special Tools
2. Navy Publications
3. Six Cylinder Engines
4. D-8 Tractor Caterpillar Diesel Engine
5. Caterpillar, D - [illegible] Engine
6. International [illegible] - 429 Engine
7. Cummins [illegible] Diesel Engines
8. Cummins PT Fuel Injection Pumps
9. Special Cummins Engine Tools

NEC 5800
DOD 612
CURRICULUM


COURSE TITLE
LOCATION
LENGTH
CLASSES PER YEAR
INPUT
SCOPE
PREREQUISITES
DUTIES
BASIC QUALIFICATIONS
GFE

10. Model LD 465-1, Multi Fuel Engines
11. M715, 1¼ Ton 4 x 4 Cargo Truck
12. Special Tools for M715 Truck
13. Caterpillar D5D Crawler Tractors
14. Caterpillar Tractor Special Tools
15. Heavy Equipment Shop Handtools
16. Caterpillar Model 25, Cable Control Unit
17. International P-25 Cable Control Unit
18. Mobile Lubricating Truck

NEC
DOD
CURRICULUM



DATA SYSTEMS TECHNICIAN

COURSE TITLE

DATA SYSTEMS TECHNICIAN (A-2) CLASS
A-150-0026

LOCATION

Naval School, Data Systems Technician, Class A, Naval Schools Command, Mare Island, Vallejo, California 94592

LENGTH

19 weeks

CLASSES PER YEAR

25

INPUT

FY - 75
396

SCOPE

[illegible]

PREREQUISITES

Graduated from the Data Systems Technician course (A-1) (Unclassified) Class A, A-150-0025, or equivalent. Enrollees not graduates of course A-150-0025 but possessing equivalent training must meet the following basic battery qualification scores: GCT + 2(ETST) = 131 or above and MECH test score above 55. Normal color perception and hearing capabilities required.

DUTIES

Performs a variety of functions relating to the operation and maintenance of electronic digital data systems and equipment. [illegible]

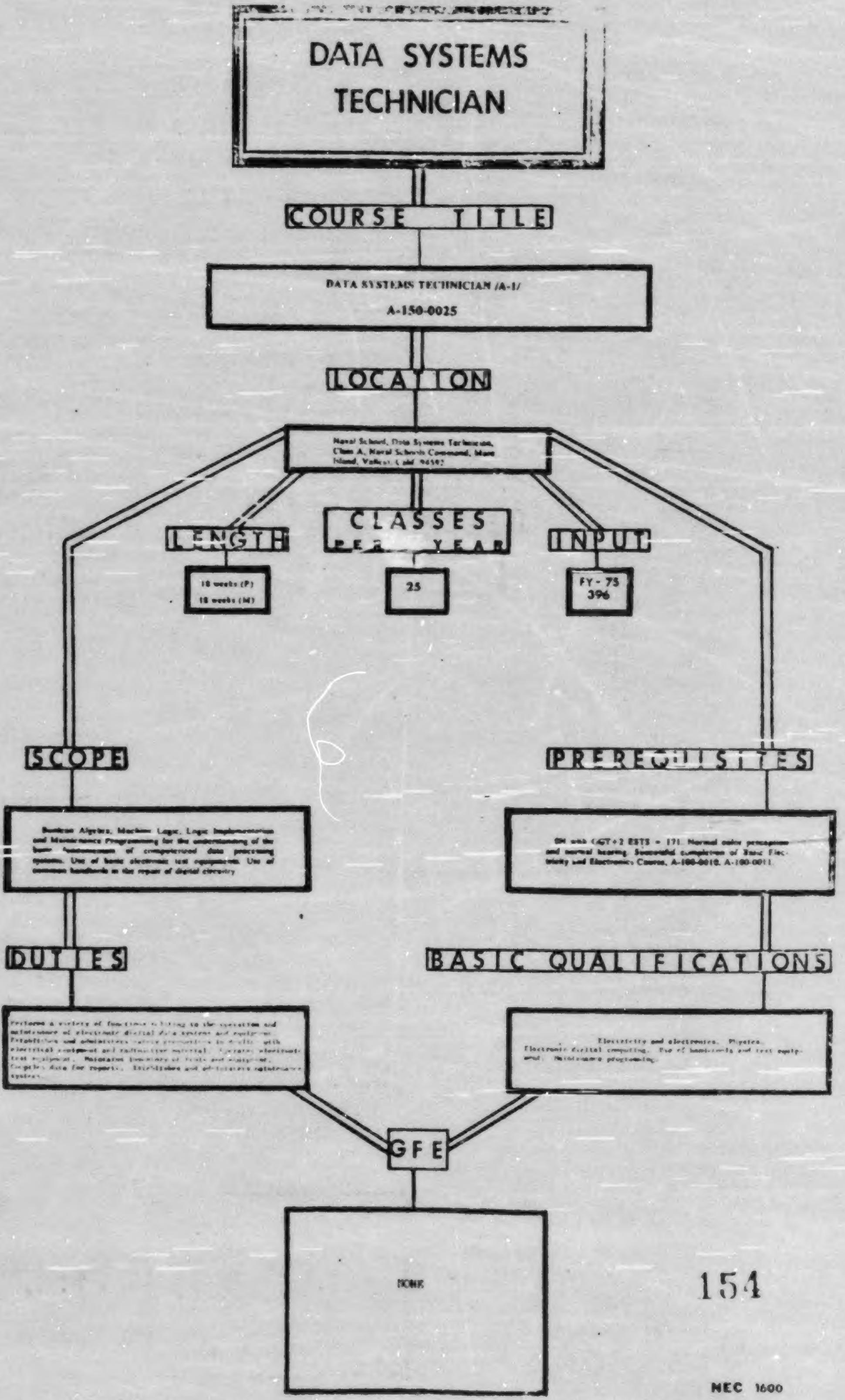
BASIC QUALIFICATIONS

Electricity and electronics. Physics. Electronic digital computing. Use of hand-tools and test equipment. Maintenance programming.

GFE

NONE

153



DATA SYSTEMS TECHNICIAN

COURSE TITLE

DATA SYSTEMS TECHNICIAN /A-1/
A-150-0025

LOCATION

Naval School, Data Systems Technician, Class A, Naval Schools Command, Mare Island, Vallejo, Calif. 94592

LENGTH

18 weeks (P)
18 weeks (M)

CLASSES PER YEAR

25

INPUT

FY - 75
396

SCOPE

Boolean Algebra, Machine Logic, Logic Implementation and Maintenance Programming for the understanding of the basic fundamentals of computerized data processing systems. Use of basic electronic test equipment. Use of common handtools in the repair of digital circuitry

PREREQUISITES

SN with GCT+2 ESTS = 171. Normal color perception and normal hearing. Successful completion of Basic Electricity and Electronics Course, A-100-0010, A-100-0011.

DUTIES

Performs a variety of functions relating to the operation and maintenance of electronic digital data systems and equipment. Establishes and administers safety precautions in dealing with electrical equipment and radioactive material. Operates electronic test equipment. Maintains inventory of tools and equipment. Compiles data for reports. Establishes and administers maintenance system.

BASIC QUALIFICATIONS

Electricity and electronics. Physics. Electronic digital computing. Use of hand-tools and test equipment. Maintenance programming.

GFE

NONE

154

DISBURSING CLERK

COURSE TITLE

DISBURSING CLERK-CLASS A
A-542-0011

LOCATION

Naval School, Disbursing Clerks, Service School Command, Naval Training Center, San Diego, California 92133

LENGTH

8 weeks (P) (M)
12 weeks (P) (M)

CLASSES PER YEAR

17

INPUT

FY- 75
231

SCOPE

Pay records, basic pay and allowances, special pay, incentive pay, other miscellaneous pay and allowances, substantiating voucher, including the payroll allotments and closing out pay records. Naval accounting, preparation and payment of public vouchers for savings deposits; Shore Patrol, wardroom mess and ship's store profits. Travel of military personnel and dependents; typing correspondence and preparation of financial reports.

PREREQUISITES

Selected SN and SA with GCT + ARI of 105. Security clearance not required. Typing ability desired.

DUTIES

Computes pay and prepares payrolls; processes [illegible] for pay [illegible]; disburses funds in payment for supplies and services; prepares financial accounts and reports; keeps pay records up to date with respect to insurance allotments, family allowances, promotions, and extra compensation; maintains disbursing office files, organizes and maintains flow of work in disbursing offices; prepares correspondence dealing with disbursing matters; makes sure official publications used in disbursing offices are kept up to date.

BASIC QUALIFICATIONS

Disbursing office organization; Protecting critical records and money; Use of official disbursing publications; General accounting; Pay & allotment records.

GFE

1. SCM 221 Electronic Display Calculator
2. Navy Forms
3. Navy Publications
4. Navy Training Aids

NEC 2900
DOD 542
CURRICULUM

ELECTRICIAN'S MATE

COURSE TITLE

ELECTRICIAN'S MATES-CLASS A

A-662-0015

LOCATION

Naval School, Electricians Mates, Class A,
Service School Command, San Diego, Calif.

LENGTH

12 weeks (P) (M)

CLASSES PER YEAR

100

INPUT

FY-75
2445

SCOPE

Principles of operation, assembly, disassembly, adjustments, fault analysis and repair of control circuitry. Hand tools, blueprint reading, synchro systems, magnetic amplifiers, lighting circuits, distribution systems, basic hydraulic and pneumatics, small craft electrical systems, solid and digital logic. Operation of power equipment and operation of 16MM sound motion picture projection systems.

PREREQUISITES

GCT plus MECH plus SP equals 156. Normal color perception. Graduate of Basic Electricity and Electronics School.

DUTIES

Installs power and lighting circuits; repairs open circuits; finds and clears grounds; runs wiring for lights and other equipment; repairs electrical equipment and appliances; installs and repairs storage batteries; inspects and tests all electrical power apparatus; maintains operating efficiency of electric motors; prepares electrical sketches, diagrams and blueprints; connects electrical power machinery and electrical power equipment; maintains operating efficiency of distribution panels, switches, switchboards, controllers, voltage regulators, current transformers and voltage transformers.

BASIC QUALIFICATIONS

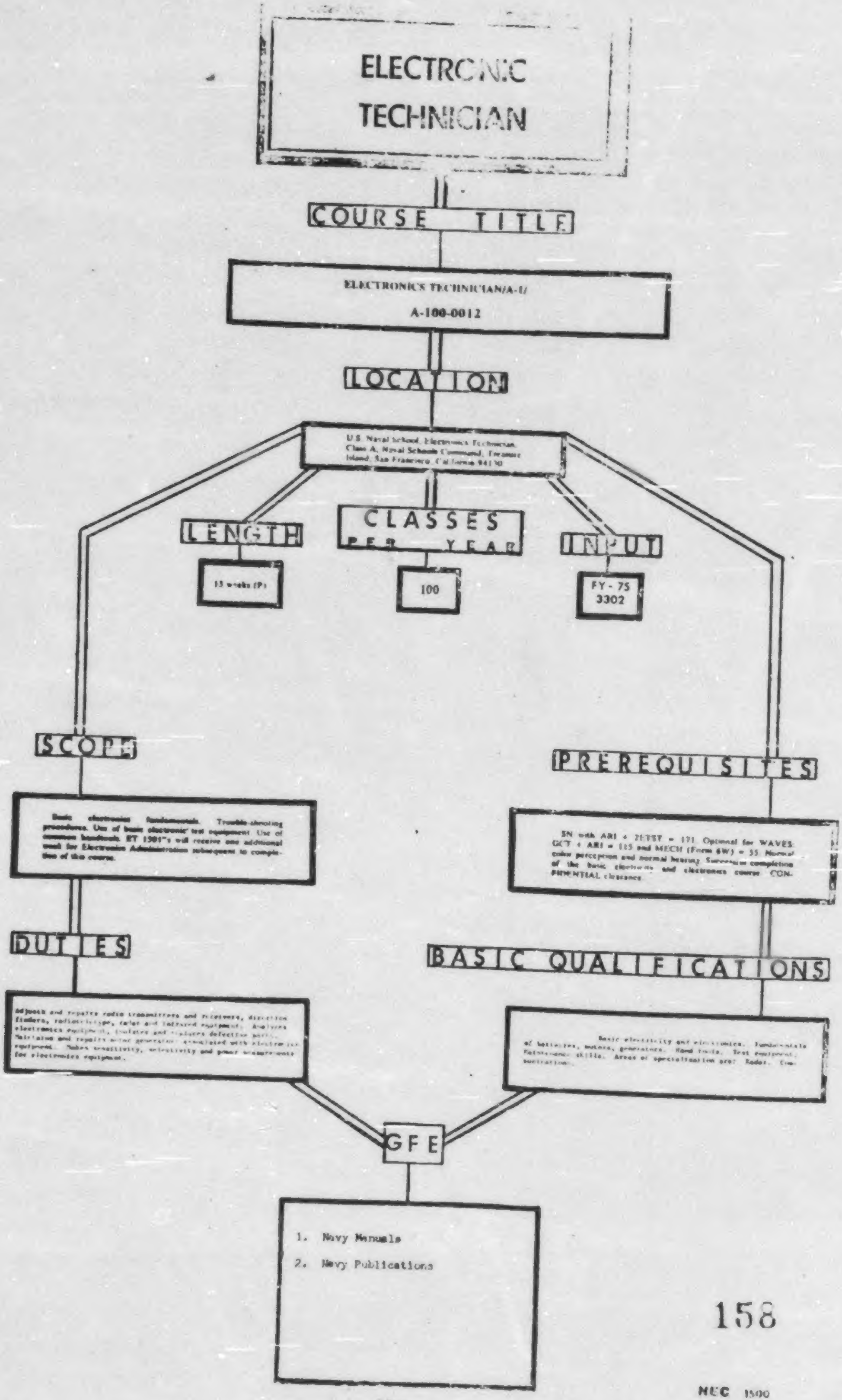
Fundamentals of DC and AC electricity; fundamentals of electrical equipment; blueprint and electrical print reading; soldering electrical connections; maintenance and repair of DC and AC generators, motors and controllers; operating and maintenance of power and lighting systems; electrical measurements; use of hand tools and bench tools; battery maintenance.

GFE

REFER TO NEXT PAGE

GFE

1. Megohmmeter PSM - 1A
2. Multimeter PSM - 4
3. NAVPERS 17205 Rotating Electric Machine/Crow/ Dev. 26K3
4. Megohmmeter AN/PSM - 1A, or Similar Equipment
5. Isometric Blue Prints 1845000
6. Instrument Transformer 440.115 Step Down
7. Rollaway 4-3-1R Manual Degaussing Demonstrator
8. NAVPERS 18026OP Slated Globe, 25 inch/Dev. 1ff2B
9. Degaussing Switchboard
10. Rollaway 5-1-1R Direct Acting Voltage Regulator
11. Rollaway 5-2-1R Casualty Power System Components
12. Rollaway 5-2-1R Circuit Breakers
13. Destroyer Escort Emergency Switchboard
14. Casualty Power System
15. Rollaway 6-1-1R Cables and Accessories
16. Destroyer Escort, Ship's Service Switchboard
17. Cruiser Control Benchboard and Associated Equipment
18. Rollaway 6-2-9 12" Mercury Xenon Searchlight and Ballast
19. Rollaway 6-2-9R 24" Carbon Arc Searchlight
20. Relay Operated Hand Lantern MS-17231
21. Extension Lamp Stock #7G 6230-701-2947
22. Megohmmeter Model 7676
23. Running Light Supply and Control Panel
24. 12" Incandescent Signal Light
25. Speed Light Controller
26. Speedlight Control Console
27. Tachometer Type B, Class A
28. Assorted Controllers MOD 613CH152C Cutler Hammer
29. Signal Generator AN/URM - 127
30. NAVPERS 230136 Semi-Automatic Logic and Programming Trainer
31. VTVM ME 74U
32. Navy Publications
33. Navy Manuals



ELECTRONIC TECHNICIAN

COURSE TITLE

ELECTRONICS TECHNICIAN/A-1/
A-100-0012

LOCATION

U.S. Naval School, Electronics Technician, Class A, Naval Schools Command, Treasure Island, San Francisco, California 94130

LENGTH

13 weeks (P)

CLASSES PER YEAR

100

INPUT

FY-75
3302

SCOPE

Basic electronics fundamentals. Trouble-shooting procedures. Use of basic electronic test equipment. Use of common handtools. ET 1501"s will receive one additional week for Electronics Administration subsequent to completion of this course.

PREREQUISITES

SN with ARI + 2-TST = 171. Optional for WAVES: GCT + ARI = 115 and MECH (Form 6W) = 55. Normal color perception and normal hearing. Successful completion of the basic electricity and electronics course. CONFIDENTIAL clearance.

DUTIES

Adjusts and repairs radio transmitters and receivers, direction finders, radiac, teletype, radar and infrared equipment. Analyzes electronics equipment, isolates and replaces defective parts. Maintains and repairs motor generators associated with electronics equipment. Makes sensitivity, selectivity and power measurements for electronics equipment.

BASIC QUALIFICATIONS

Basic electricity and electronics. Fundamentals of batteries, motors, generators. Hand tools. Test equipment. Maintenance skills. Areas of specialization are: Radar. Communications.

GFE

1. Navy Manuals
2. Navy Publications

NEC 1500
DOD 100
CURRICULUM

ELECTRONIC TECHNICIAN

COURSE TITLE

ELECTRONICS TECHNICIAN A-2

A-100-0014

LOCATION

U.S. Naval School, Electronics Technician,
Class A, Naval Schools Command, Treasure
Island, San Francisco, California 94130

LENGTH

9 weeks (P) (M)

CLASSES PER YEAR

100

INPUT

FY - 75
3302

SCOPE

Pulse techniques - Microwave techniques Control Systems

PREREQUISITES

Successful completion of the Electronics Technician course (A-1), Class A. CONFIDENTIAL clearance

DUTIES

Adjusts and repairs [illegible] transmitters and receivers, direction finders, radioteletype, radar and [illegible] equipment. Analyzes electronics equipment, isolates and replaces defective parts. Fabricates and repairs motor generators associated with electronics equipment. Makes [illegible], selectivity and power measurements for electronics equipment.

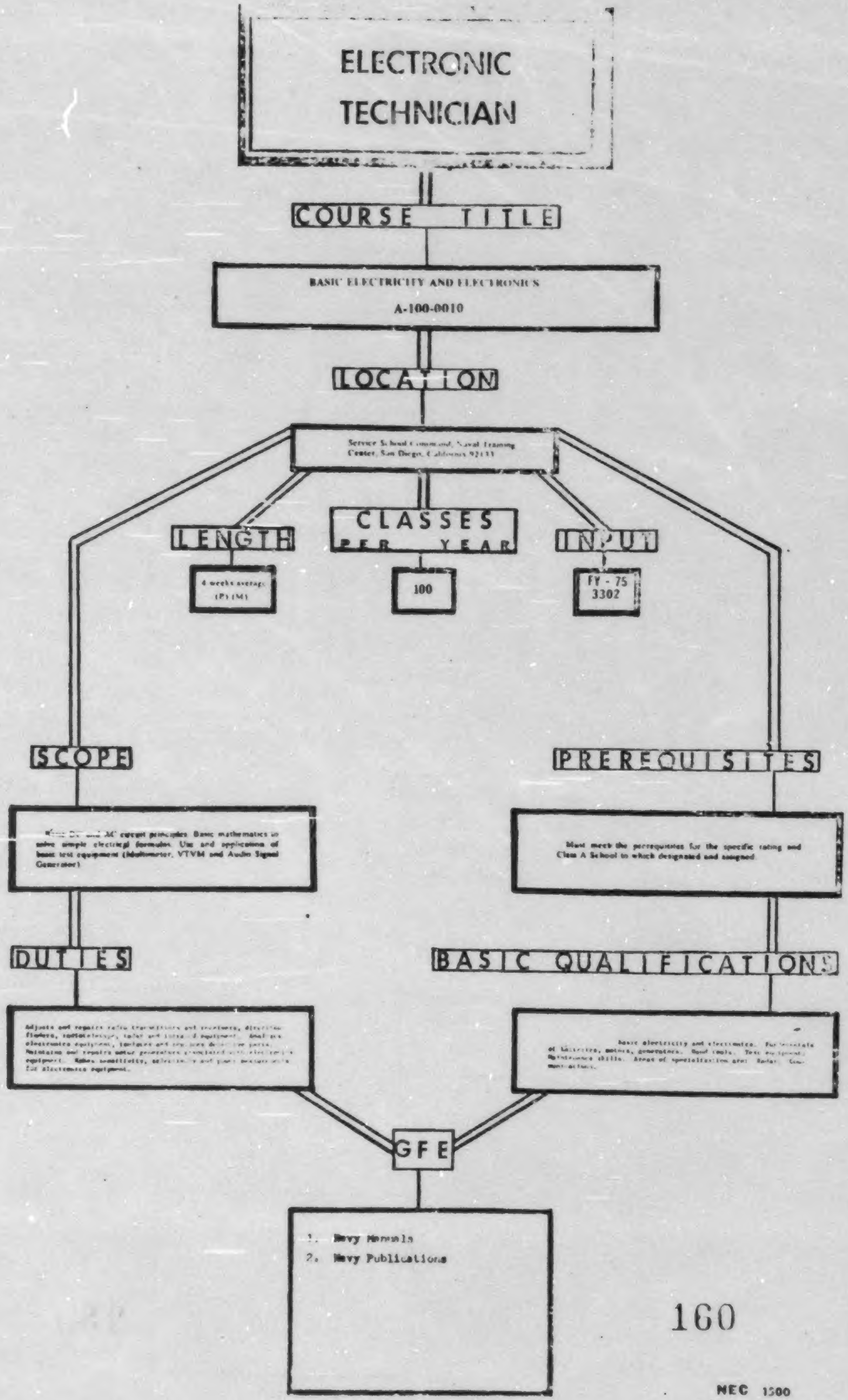
BASIC QUALIFICATIONS

Basic electricity and electronics. Fundamentals of batteries, motors, generators. Hand tools. Test equipment. Maintenance skills. Areas of specialization are: Radar. Communications.

GFE

1. Navy Manuals
2. Navy Publications

NEC 1500
DOD 100
CURRICULUM



ELECTRONIC TECHNICIAN

COURSE TITLE

BASIC ELECTRICITY AND ELECTRONICS
A-100-0010

LOCATION

Service School Command, Naval Training Center, San Diego, California 92133

LENGTH

4 weeks average
(P) (M)

CLASSES PER YEAR

100

INPUT

FY - 75
3302

SCOPE

Basic DC and AC circuit principles. Basic mathematics to solve simple electrical formulas. Use and applications of basic test equipment (Multimeter, VTVM and Audio Signal Generator)

PREREQUISITES

Must meet the prerequisites for the specific rating and Class A School to which designated and assigned.

DUTIES

Adjusts and repairs radio transmitters and receivers, direction finders, radioteletype, radar and infrared equipment. Analyzes electronics equipment, isolates and replaces defective parts. Maintains and repairs motor generators associated with electronic equipment. Makes sensitivity, selectivity and power measurements for electronics equipment.

BASIC QUALIFICATIONS

Basic electricity and electronics. Fundamentals of batteries, motors, generators. Hand tools. Test equipment. Maintenance skills. Areas of specialization are: Radar. Communications.

GFE

1. Navy Manuals
2. Navy Publications

ENGINEERING AID

COURSE TITLE

ENGINEERING AIDS-CLASS A

A-412-0010

LOCATION

Naval Schools Construction, Port Hueneme, California

LENGTH

14 weeks (P)
12 weeks (M)

CLASSES PER YEAR

7

INPUT

FY-75
110

SCOPE

Review of mathematics including logarithms, geometry and trigonometry, materials testing of soils, asphalt and concrete, basic drafting, blueprint reading, basic surveying including office computations, chaining, and use of transit, level, and compass, topographic surveying and building layout.

PREREQUISITES

Selected CN, CA, SN and FN with GCT + ARI of 105. Candidates must have credit in a course in trigonometry and should be volunteers for Group VIII. Vision correctible to 20/20 is required. Technical or surveying experience training or aptitude desirable. Security clearance is not required.

DUTIES

Conducts location surveys for roads, airfields, etc; prepares [illegible] graphic, topographic and triangulation surveys, runs and profiles; lays out all types of construction work; conducts concrete, soil, and asphalt tests; designs construction of drainage systems; prepares blueprints, drawings and sketches for grading, sewers, water lines, [illegible] excavations and excavations for building foundations; operates and maintains various types of precision instruments; computes amount of material to be moved in cuts and fills; perform quality control to all types of construction projects.

BASIC QUALIFICATIONS

Introduction to surveying; measurement of distances; determination of direction; how to work with various surveying tools; topographic surveying; construction surveying; hydrographic surveying; map making; maintenance of surveying tools and equipment.

GFE

1. Navy Training Aids
2. Distillation Apparatus
3. Navy Publications
4. Navy Forms
5. Compression Test Machine
   (1[illegible]0,000 lbs. capacity)
6. Flexure Test Machine
   (1[illegible]0,000 lbs. capacity)

NEC 5500
DOD 412
CURRICULUM

EQUIPMENT OPERATOR

COURSE TITLE

EQUIPMENT OPERATORS-CLASS A

A-730-0010

LOCATION

Naval Schools Construction, Port Hueneme, California

LENGTH

12 weeks (P),
11 weeks (M)

CLASSES PER YEAR

24

INPUT

FY-75
475

SCOPE

Basic mathematics related to equipment operation and production; the care and use of handtools; the basic principles of internal combustion engines; fuels and lubricants; basic fundamentals of earthwork and equipment production; operation, adjustment and servicing of hauling, loading, lifting and ditching equipment; soil compactors, crawler tractors with attachments, wheeled tractor drawn scrapers.

PREREQUISITES

Selected CN, CA, SN, and FN with GCT + MECH + [illegible] = 150. Candidates should be volunteers for Group VIII. Vision correctable to 20/20. Must be able to distinguish red, green, and yellow colors, regardless of position, and have normal stereoscopic vision. (ARI + MECH = 100 for Reserves).

DUTIES

Operates and performs maintenance on heavy duty self-propelled equipment for such projects as structure erection, repair, salvage, grading and excavation; rigs cable assemblies and mounts attachments for lifting and pile driving operations; prepares operational reports on equipment, dispatches and assigns automotive and construction equipment.

BASIC QUALIFICATIONS

Basic principles of gasoline and diesel engines; Operation of various types of automotive equipment, tractors with attachments, earthmoving equipment and lifting equipment; Principles of earthwork, road construction, grading and filling.

GFE

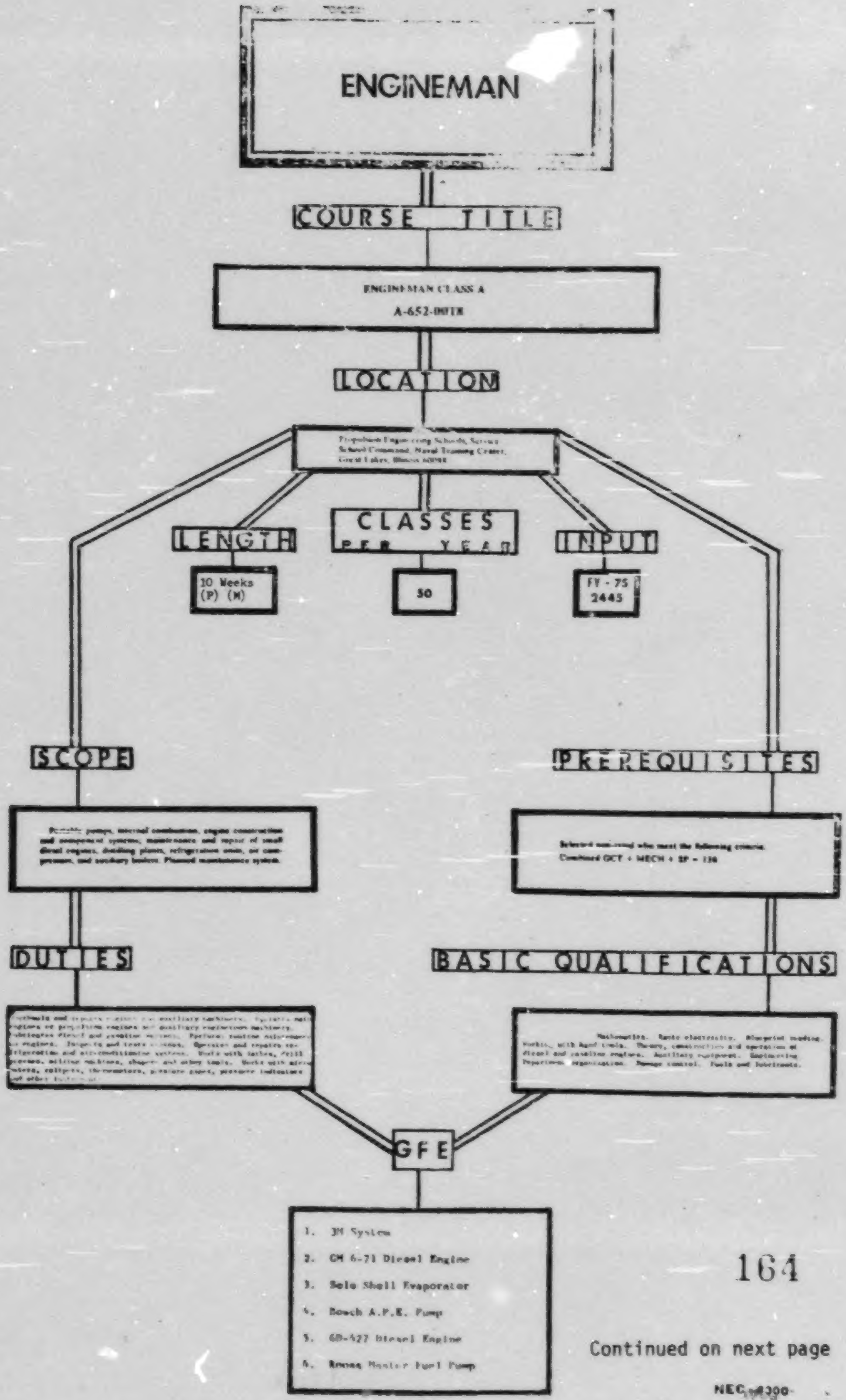
REFER TO NEXT PAGE

162

NEC 5700
DOD 730
CIVILIAN [illegible]

GFE

1. Caterpiller D-8 Tractor
2. International TD-24 Tracked Tractor
3. EIMCO Tractor
4. Wheel Tractor, Caterpillar, Model DW20
5. Wheel Tractor, MRS, Model 200
6. MRS Tractor, Model I-110
7. MRS Scraper, Model S-110
8. Navy Publications
9. Films or (Training Aids)
10. Caterpillar D-4 Crawler Tractor
11. Truck Tractor, 5-Ton
12. Semitrailer
13. Front End Loader with 4 in 1 Attachment
14. W-10-DS Front End Loader with 4 in 1 Bucket Attachment
15. Rough Terrain Fort Lift Truck, Pettibone-Milliken, Model RT-6000
16. Ditcher, Model 44C
17. Tractor Tracked, International TD-24
18. Tractor, Crawler, EIMCO, Model 130MC
19. Crawler Tractor, International TD-18
20. Scraper, Road, Le Tourneau, Model BT2
21. Motor Graders
22. Grid Rollers; Sheepsfoot, Tricycle, Tandem and Hyster
23. Testing Machines, Reaction, Glare and Steadiness



ENGINEMAN

COURSE TITLE

ENGINEMAN CLASS A
A-652-0010

LOCATION

Propulsion Engineering Schools, Service School Command, Naval Training Center, Great Lakes, Illinois 60088

LENGTH

10 Weeks
(P) (M)

CLASSES PER YEAR

50

INPUT

FY - 75
2445

SCOPE

Portable pumps, internal combustion, engine construction and component systems, maintenance and repair of small diesel engines, distilling plants, refrigeration units, air compressors, and auxiliary boilers. Planned maintenance system.

PREREQUISITES

Selected non-rated who meet the following criteria.
Combined GCT + MECH + EP = 138

DUTIES

Overhauls and repairs engines and auxiliary machinery. Operates main engines or propulsion engines and auxiliary engineroom machinery. Lubricates diesel and gasoline engines. Performs routine maintenance on engines. Inspects and tests engines. Operates and repairs refrigeration and air-conditioning systems. Works with lathes, drill presses, milling machines, shapers and other tools. Works with micrometers, calipers, thermometers, pressure gages, pressure indicators and other instruments.

BASIC QUALIFICATIONS

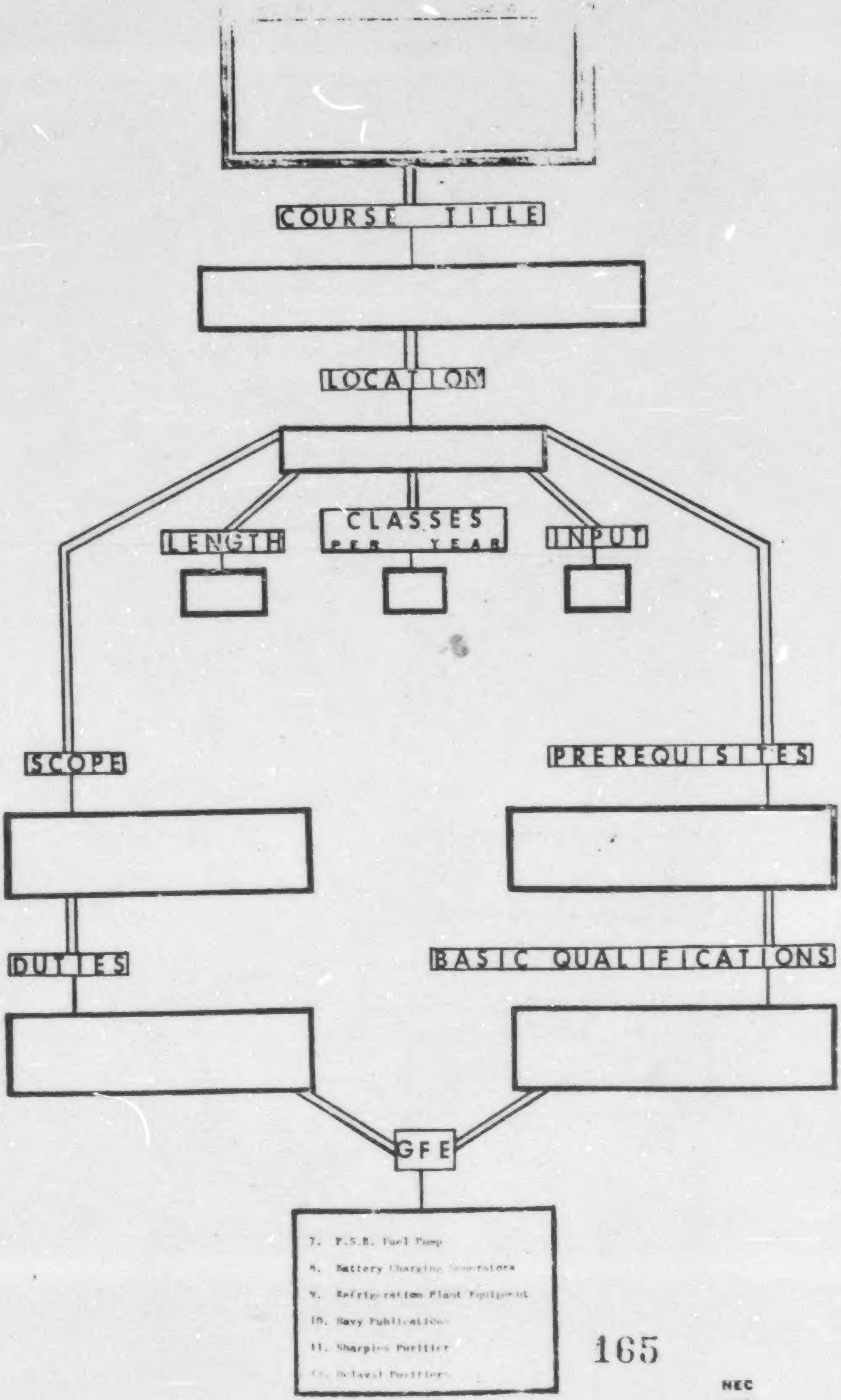
Mathematics. Basic electricity. Blueprint reading. Working with hand tools. Theory, construction and operation of diesel and gasoline engines. Auxiliary equipment. Engineering Department organization. Damage control. Fuels and lubricants.

GFE

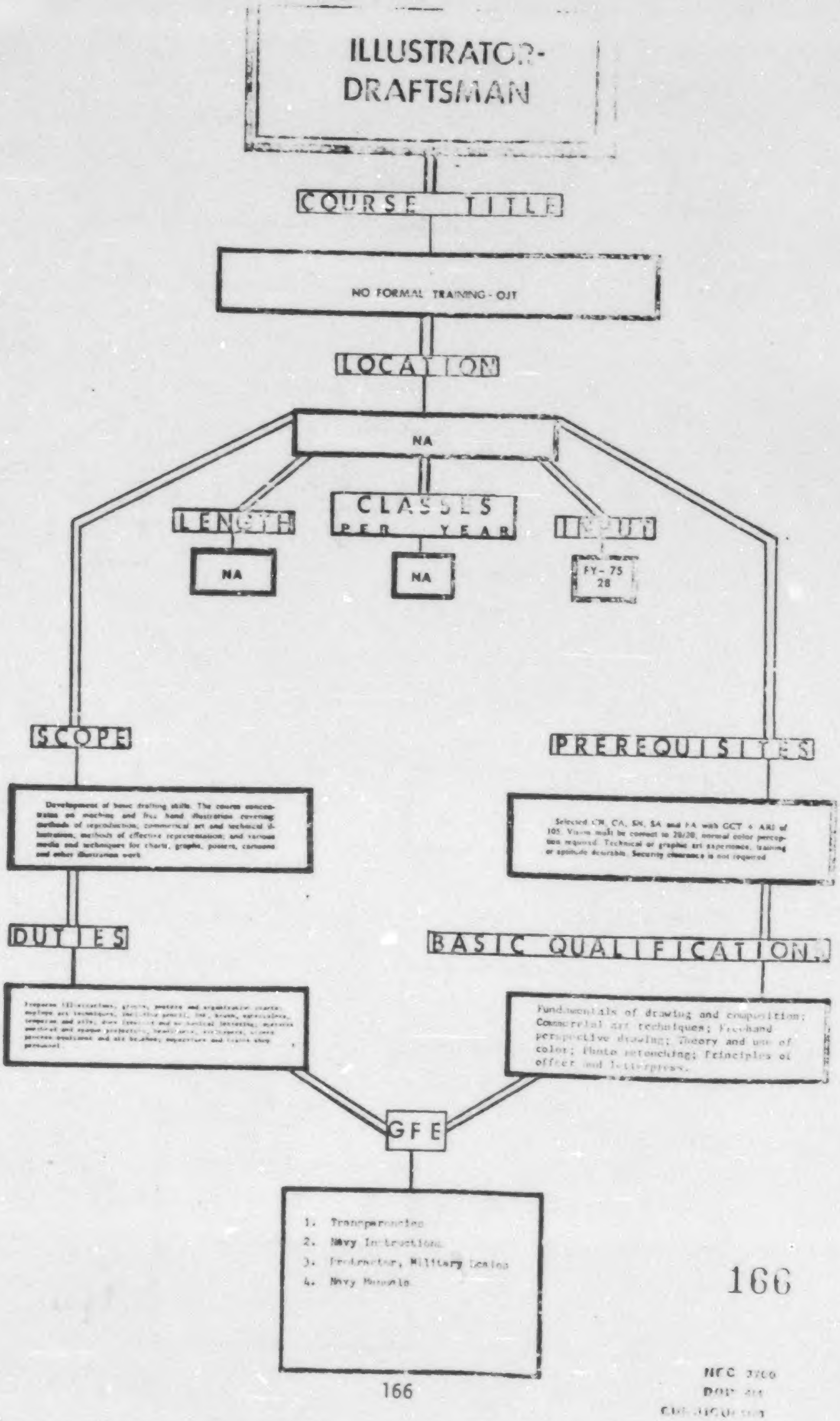
1. 3M System
2. GM 6-71 Diesel Engine
3. Solo Shell Evaporator
4. Bosch A.P.E. Pump
5. 6D-527 Diesel Engine
6. Roosa Master Fuel Pump

Continued on next page

NEC 4300
DOD 652
CURRICULUM


COURSE TITLE
LOCATION
LENGTH
CLASSES PER YEAR
INPUT
SCOPE
PREREQUISITES
DUTIES
BASIC QUALIFICATIONS
GFE

7. F.S.B. Fuel Pump
8. Battery Charging Generators
9. Refrigeration Plant Equipment
10. Navy Publications
11. Sharples Purifier
12. DeLaval Purifiers


ILLUSTRATOR-DRAFTSMAN
COURSE TITLE
LOCATION
LENGTH
CLASSES PER YEAR
INPUT
SCOPE
PREREQUISITES
DUTIES
BASIC QUALIFICATIONS
GFE

NO FORMAL TRAINING - OJT

NA

NA

NA

FY-75
28

Development of basic drafting skills. The course concentrates on machine and free hand illustration covering methods of reproduction; commercial art and technical illustration; methods of effective representation; and various media and techniques for charts, graphs, posters, cartoons and other illustration work.

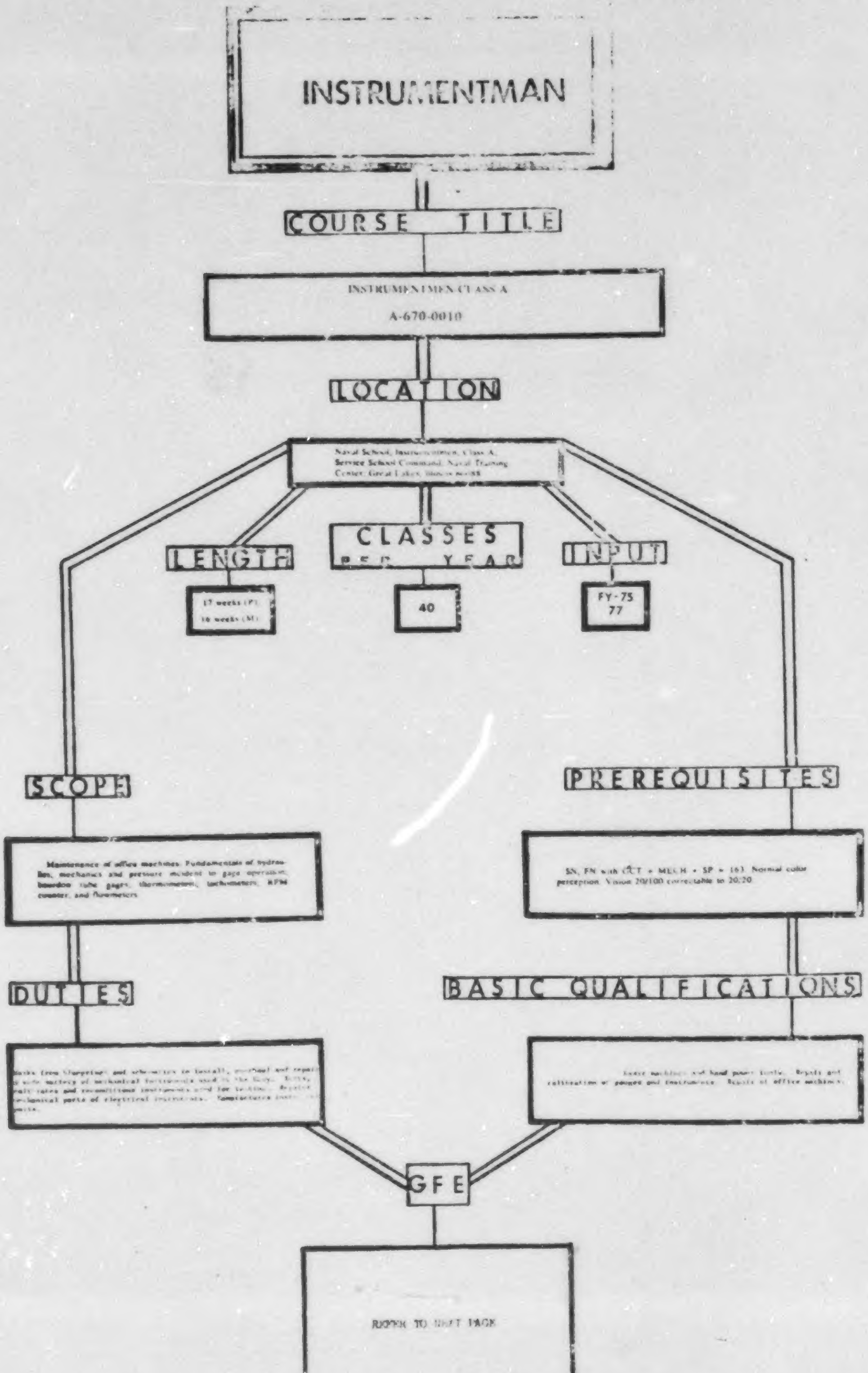
Selected CN, CA, SN, SA and FA with GCT + ARI of 105. Vision must be correct to 20/20, normal color perception required. Technical or graphic art experience, training or aptitude desirable. Security clearance is not required.

Prepares illustrations, graphs, posters and organization charts; employs art techniques, including pencil, ink, brush, [illegible], tempera and oils; does freehand and mechanical lettering; operates [illegible] and opaque projectors, [illegible], [illegible], [illegible] process equipment and air brushes; supervises and trains shop personnel.

Fundamentals of drawing and composition; Commercial art techniques; Freehand perspective drawing; Theory and use of color; Photo retouching; Principles of offset and letterpress.

1. Transparencies
2. Navy Instructions
3. Protractor, Military Scales
4. Navy Manuals

NEC 3700
DOT [illegible]
[illegible]



INSTRUMENTMAN

COURSE TITLE

INSTRUMENTMEN CLASS A

A-670-0010

LOCATION

Naval School, Instrumentmen, Class A, Service School Command, Naval Training Center, Great Lakes, Illinois 60088

LENGTH

17 weeks (P)

16 weeks (M)

CLASSES PER YEAR

40

INPUT

FY-75

77

SCOPE

Maintenance of office machines. Fundamentals of hydraulics, mechanics and pressure incident to gage operation; bourdon tube gages, thermometers, tachometers, RPM counter, and flowmeters.

PREREQUISITES

SN, FN with GCT + MECH + SP = 163. Normal color perception. Vision 20/100 correctable to 20/20.

DUTIES

orks from blueprints and schematics to install, overhaul and repair a wide variety of mechanical instruments used in the Navy. Tests, [illegible] rates and reconditions instruments used for testing. Repairs mechanical parts of electrical instruments. Manufactures instr[illegible] parts.

BASIC QUALIFICATIONS

[illegible] machines and hand power tools. Repair and calibration of gauges and instruments. Repair of office machines.

GFE

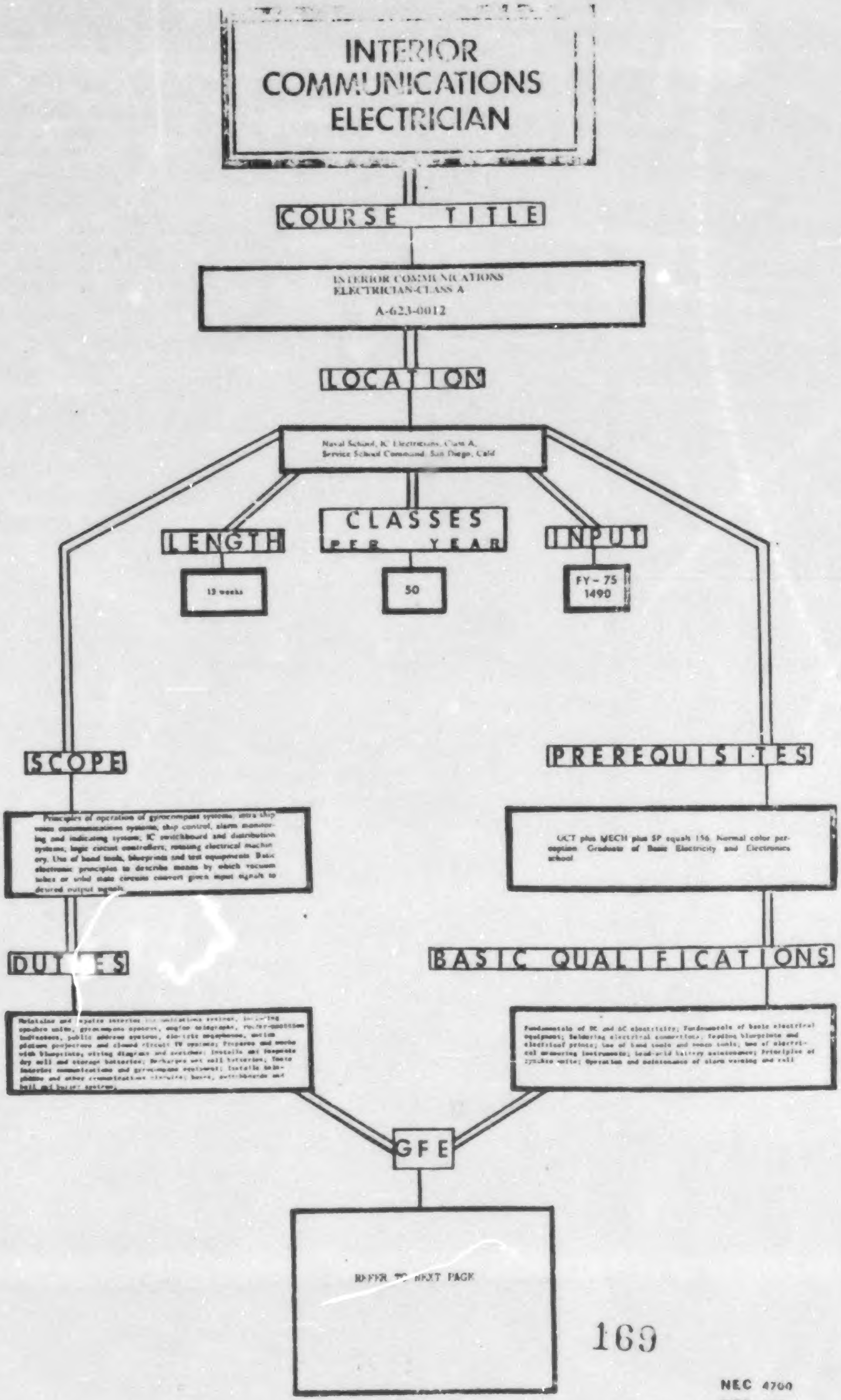
REFER TO NEXT PAGE

167

NEC 1800
DOD 670
CURRICULUM

GFE

1. Low Pressure Air Calibration Bench
2. Hydraulic Pressure Calibration Bench
3. Barton Model-200 Pressure Gage
4. Oil or water Deadweight Tester
5. Bi-Fluid Deadweight Tester
6. Deadweight Gage Tester
7. Wallace & Tiernam Portable Pneumatic Calibrator
8. Taylor Pressure Calibrator
9. Bailey Portable Pneumatic Test Kit
10. Instrument Cleaning Machine
11. Thermometer Calibration Equipment
12. Thermocouple Measurement Equipment
13. Tachometer Tester
14. Nutating-Piston Meter
15. Zeroing Adjustments
16. Torque Wrench Calibrator
17. Jeweler's Lathe and Assessories
18. Staking Tool and Assessories
19. Demagnetizing Machine
20. Watch Cleaning Machine
21. Jeweler Tools
22. [illegible] Mimeogragh
23. A.B. Dick Model 215
24. Class 200 Addressograph



INTERIOR COMMUNICATIONS ELECTRICIAN

COURSE TITLE

INTERIOR COMMUNICATIONS
ELECTRICIAN-CLASS A
A-623-0012

LOCATION

Naval School, IC Electricians, Class A,
Service School Command, San Diego, Calif

LENGTH

13 weeks

CLASSES PER YEAR

50

INPUT

FY-75
1490

SCOPE

Principles of operation of gyrocompass systems, intra-ship voice communications systems, ship control, alarm monitoring and indicating systems; IC switchboard and distribution systems; logic circuit controllers; rotating electrical machinery. Use of hand tools, blueprints and test equipments. Basic electronic principles to describe means by which vacuum tubes or solid state circuits convert given input signals to desired output signals.

PREREQUISITES

GCT plus MECH plus SP equals 156. Normal color perception. Graduate of Basic Electricity and Electronics school

DUTIES

Maintains and repairs interior communications systems, including synchro units, gyrocompass systems, engine telegraphs, rudder-position indicators, public address systems, electric megaphones, motion picture projectors and closed circuit TV systems; Prepares and works with blueprints, wiring diagrams and sketches; Installs and inspects dry cell and storage batteries; Recharges wet cell batteries; Tests interior communications and gyrocompass equipment; Installs telephones and other communications circuits; boxes, switchboards and bell and buzzer systems.

BASIC QUALIFICATIONS

Fundamentals of DC and AC electricity; Fundamentals of basic electrical equipment; Soldering electrical connections; Reading blueprints and electrical prints; Use of hand tools and power tools; Use of electrical measuring instruments; Lead-acid battery maintenance; Principles of synchro units; Operation and maintenance of alarm warning and call

GFE

REFER TO NEXT PAGE

NEC 4700
DOD 623
CURRICULUM

GFE

1. R-390 Receiver Power Supply
2. R-390 Receiver Unit
3. AN/URC-32 Transciever
4. AN/SRA-22 Antenna Coupler
5. AN/URC-32 Transceiver Frequency Generator
6. AN/URT-23 Radio Transmitting Set
7. Radio Transmitter T-827B/URT
8. Radio Frequence Amplifier AM-3929/URT
10. Antenna Coupler Group-AN/URA-38
11. Radio Receiver R-1051/URR
12. AN/URC-9 AC-DC Power Distribution
13. Power Supply PP 2702/URC-9
14. Receiver Transmitter RT-581/URC-9
15. RF Amplifier AM-1565/URC
16. Radio Set Contml, C-3866/SRC
17. AN/SRA-33 Antenna Coupler Group
18. AN/SRC-21
19. AN/SRC-20
20. TT-23 Communications Patch Panel
21. AN/SGC-1A Radio Teletype Terminal Set
22. AN/URA-17 Comparator-Converter Group
23. AN/UCC-1C(V) Integrated Circuit Devices
24. AN/UCC-1C(V) Frequency Shift Converter

JOURNALIST

COURSE TITLE

JOURNALIST ; BASIC MILITARY - CLASS A
A - 570-0011

LOCATION

Defense Information School, Fort
Benjamin Harrison, Indiana 46216

LENGTH

8 weeks (M)
10 weeks (F

CLASSES PER YEAR

16

INPUT

FY-75
141

SCOPE

Applied journalism, including photo-journalism. The first four weeks of the course concentrate on basic public affairs principles, policies, and plans, speech and research, international relations and government, Navy public affairs and broadcasting. The remaining six weeks are devoted to the journalist specialty.

PREREQUISITES

Must be a high school graduate or possess a certificate of equivalency. Must be able to type 20 words per minute. Must be in grade E-3 or above and possess a combined GCT and CLER of 110. Selected applicants must be highly motivated, void of any history of undesirable traits or disciplinary problems. Male students must be eligible for overseas assignment. Security clearance not required.

DUTIES

Gathers and writes news stories for use by publications and broadcast stations, both civilian and Navy. [illegible] stories for home town news program. Writes feature articles on naval personnel and activities. Writes speeches for use by [illegible]. [illegible] and proofreads news texts. [illegible] Specifies type. Reviews ship or station newspapers. Writes and produces radio programs. Sets up and/or conducts tape-recorded interviews. Writes scripts and announcements for radio and TV. Takes news photographs. [illegible] arrangements for special events. Advises and trains [illegible] "journalists." Performs more functions of public affairs officer. [illegible] public affairs files

BASIC QUALIFICATIONS

News gathering, writing and editing. Newspaper layout and makeup. News photography. Radio and television in the Navy public affairs program. History of the United States Navy. Military Orientation. Public relations and naval public affairs policy. Advanced schooling in photojournalism and motion picture script writing.

GFE

1. Navy Publications
2. Navy Manuals

171

NEC 3200
DOD 570
CURRICULUM

LITHOGRAPHER

COURSE TITLE

NO FORMAL TRAINING - OJT
Tri-Service Training in Lithography is available at
Defence Mapping School.

LOCATION

Fort Belvoir, Virginia

LENGTH

21 weeks

CLASSES PER YEAR

NA

INPUT

FY-75
60

SCOPE

How to make layouts and prepare copy to be photographed. How to use cold type composition machines. Photographic processes and equipment used in lithography. Principles and methods of lithographic platemaking. Fundamentals of letterpress printing. How to bind and finish printed material.

PREREQUISITES

Standard score of 90 or higher in Aptitude Area GEN TECH.

DUTIES

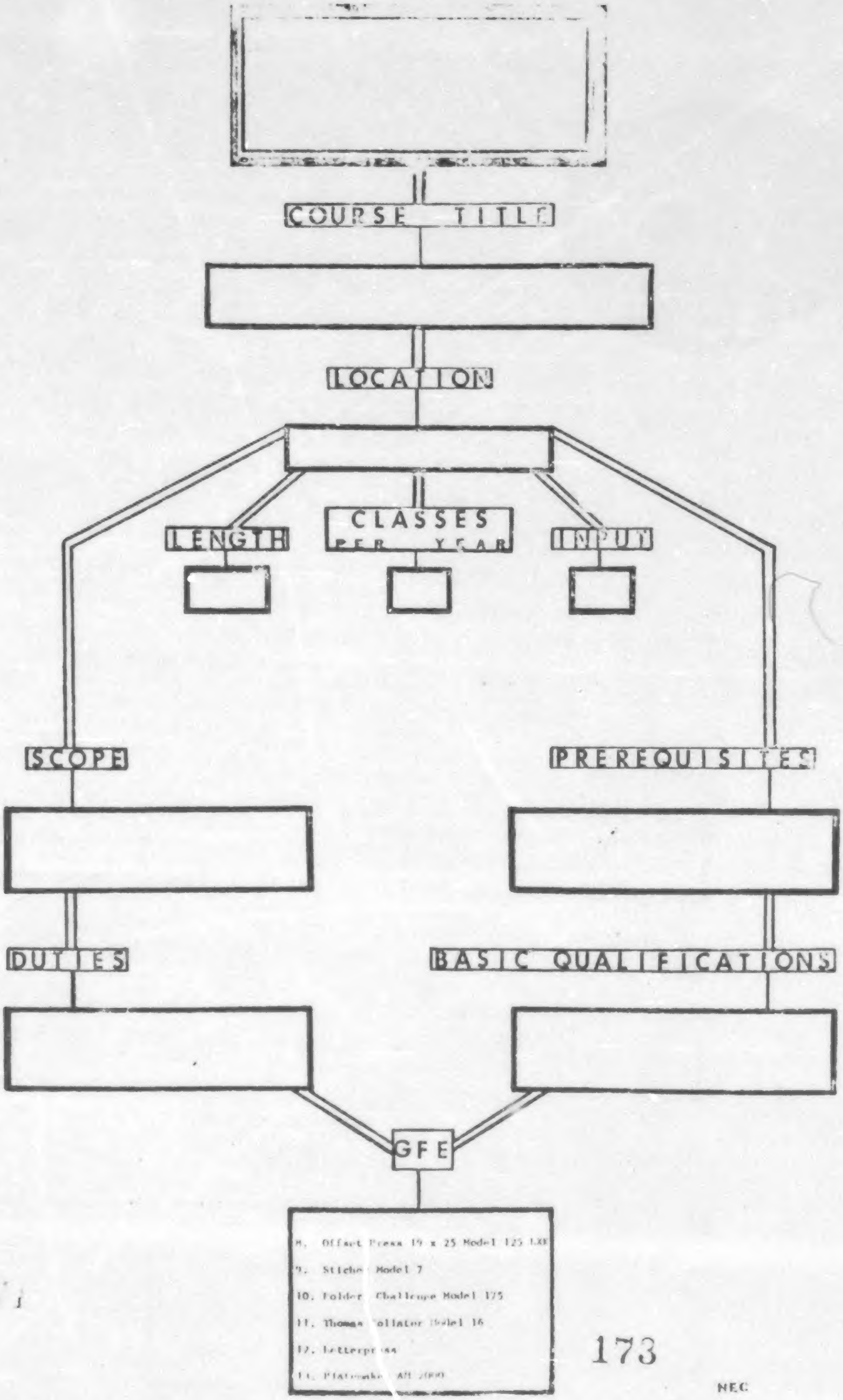
Makes layouts; marks copy for composition; proofreads; operates cold type composition machines; handsets type for proof press and letterpress; operates process camera and related equipment; makes plates and prepares them for press; collates and binds; sets up titles and headings; pulls reproduction proofs for offsetting; operates various types of presses.

BASIC QUALIFICATIONS

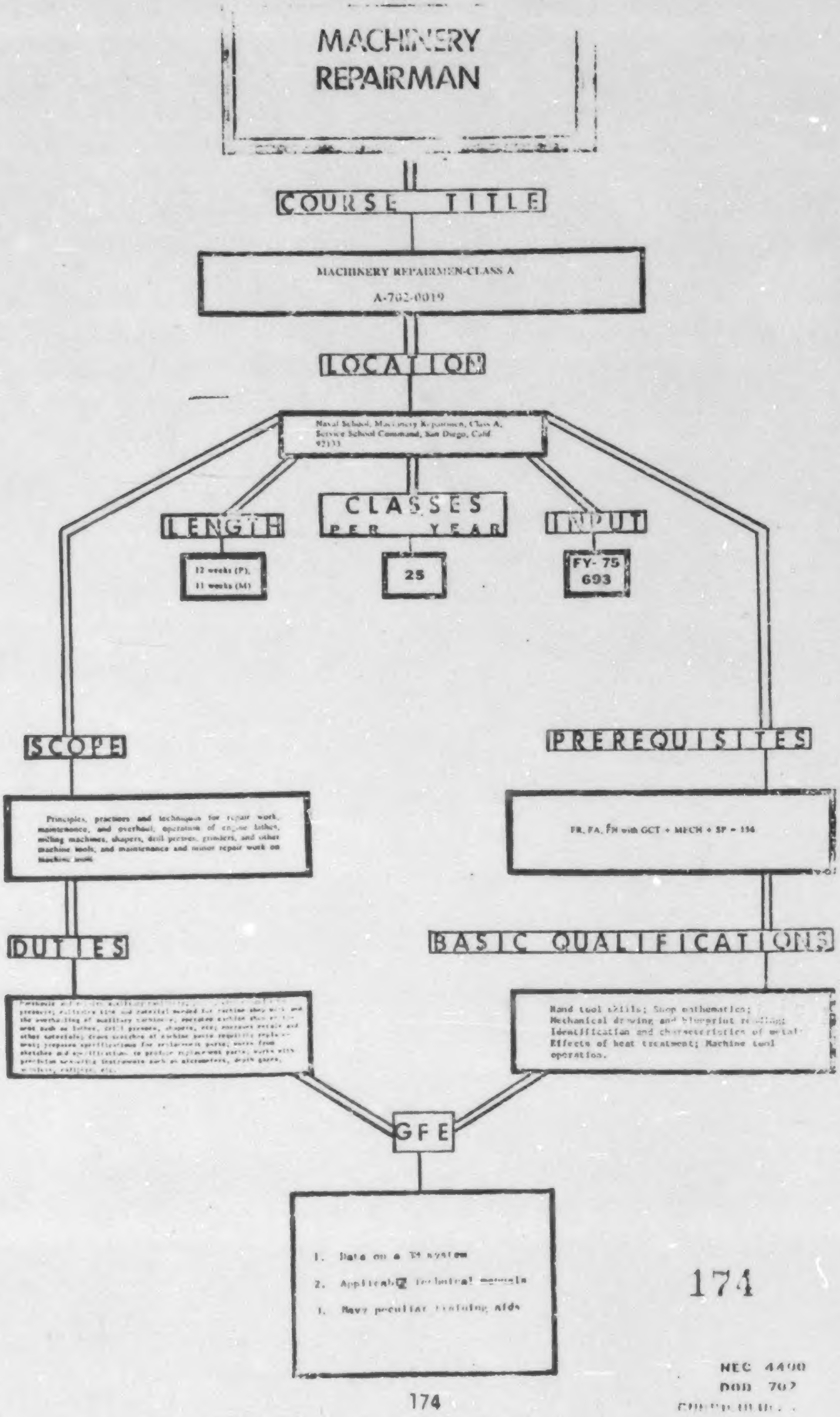
Process photography; Lithographic platemaking, Offset press operation; Reproduction equipment repair.

GFE

1. Headliner Model 880
2. Varityper Model 706
3. Kenro Vertical Camera Model V 24
4. Dry Edge Film Dryer
5. Nuarc Platemaker Model PT26N.
6. Multilith 1250
7. Platen Press 8 x 12 C&P


COURSE TITLE
LOCATION
LENGTH
CLASSES PER YEAR
INPUT
SCOPE
PREREQUISITES
DUTIES
BASIC QUALIFICATIONS
GFE

8. Offset Press 19 x 25 Model 125 LXE
9. Stitcher Model 7
10. Folder Challenge Model 175
11. Thomas Collator Model 16
12. Letterpress
13. Platemaker AM 2000



MACHINERY REPAIRMAN

COURSE TITLE

MACHINERY REPAIRMEN-CLASS A

A-702-0019

LOCATION

Naval School, Machinery Repairmen, Class A,
Service School Command, San Diego, Calif
92133

LENGTH

12 weeks (P),
11 weeks (M)

CLASSES PER YEAR

25

INPUT

FY-75
693

SCOPE

Principles, practices and techniques for repair work, maintenance, and overhaul, operation of engine lathes, milling machines, shapers, drill presses, grinders, and other machine tools, and maintenance and minor repair work on machine tools.

PREREQUISITES

FR, FA, FN with GCT + MECH + SP = 156

DUTIES

Overhauls and repairs auxiliary machinery, [illegible] pressure; estimates time and material needed for machine shop work and the overhauling of auxiliary machinery; operates machine shop equipment such as lathes, drill presses, shapers, etc; machines metals and other materials; draws sketches of machine parts requiring replacement; prepares specifications for replacement parts; works from sketches and specifications to produce replacement parts; works with precision measuring instruments such as micrometers, depth gages, verniers, calipers, etc.

BASIC QUALIFICATIONS

Hand tool skills; Shop mathematics; Mechanical drawing and blueprint reading; Identification and characteristics of metals; Effects of heat treatment; Machine tool operation.

GFE

1. Data on a [illegible] system
2. Applicable technical manuals
3. Navy peculiar training aids

174

NEC 4400
DOD 702
CONTINUED

GFE

1. Molding Tools
2. Pneumatic Chipping Hammer
3. Pneumatic Rammer
4. 300-Pound Batch Sand Muller
5. Portable Optical Pyrometer
6. Compressed Air Torch
7. Compressed Air Burner
8. Portable Optical Pyrometer
9. Metalcutting Bandsaw
10. Sandblasting Cabinet
11. Rocking Indirect-Arc Furnace
12. Electrode Regulating and Power Panel
13. Transformer for rocking indirectarc furnace
14. Variable-Rocking Control Panel
15. Rocking Electric-Resistor Furnace
16. Transformer for Rocking Electric-Resistor Furnace
17. Control and Power Panel for Rocking Electric-Resistor Furnace
18. Tilting High-Frequency Induction Furnace
19. Lift-Coil High-Frequency Induction Furnace
20. High-Frequency Induction Furnace Control Panel
21. Oil-Fired Furnace
22. Moisture Teller
23. Standard Rockwell Hardness Test Machine

MACHINIST'S MATE

COURSE TITLE

MACHINISTS MATES-CLASS A
A-651-0015

LOCATION

Propulsion Engineering Schools, Service
School Command, Naval Training Center,
Great Lakes, Illinois 60088

LENGTH

11 weeks

CLASSES PER YEAR

50

INPUT

FY- 75
4835

SCOPE

Main propulsion and ancillary steam plant operation. Basic hydraulics, pneumatics and lubrication. Distilling plant theory and operation. Pump types and applications. Basic refrigeration theory, piping systems preventing maintenance systems for above. Engineering logs and records.

PREREQUISITES

Selected FR, FA and FN meeting the following criteria:
GCT + MECH + SP = 156

DUTIES

Operates and maintains the propulsion machinery and auxiliary machinery such as refrigerating and airconditioning plants; repairs machinery; performs preventive maintenance operations; maintains operating efficiency of steering engines and elevators; lubricates machinery; works with precision measuring instruments such as dial indicators, micrometers, etc.

BASIC QUALIFICATIONS

Principal machinery parts; mathematics used in shop operations; principles of electricity; principles of gas production, refrigeration and airconditioning; how to test various machines and systems; the language of engineering; use of drainage, flushing and fire main systems; principles of lubrication.

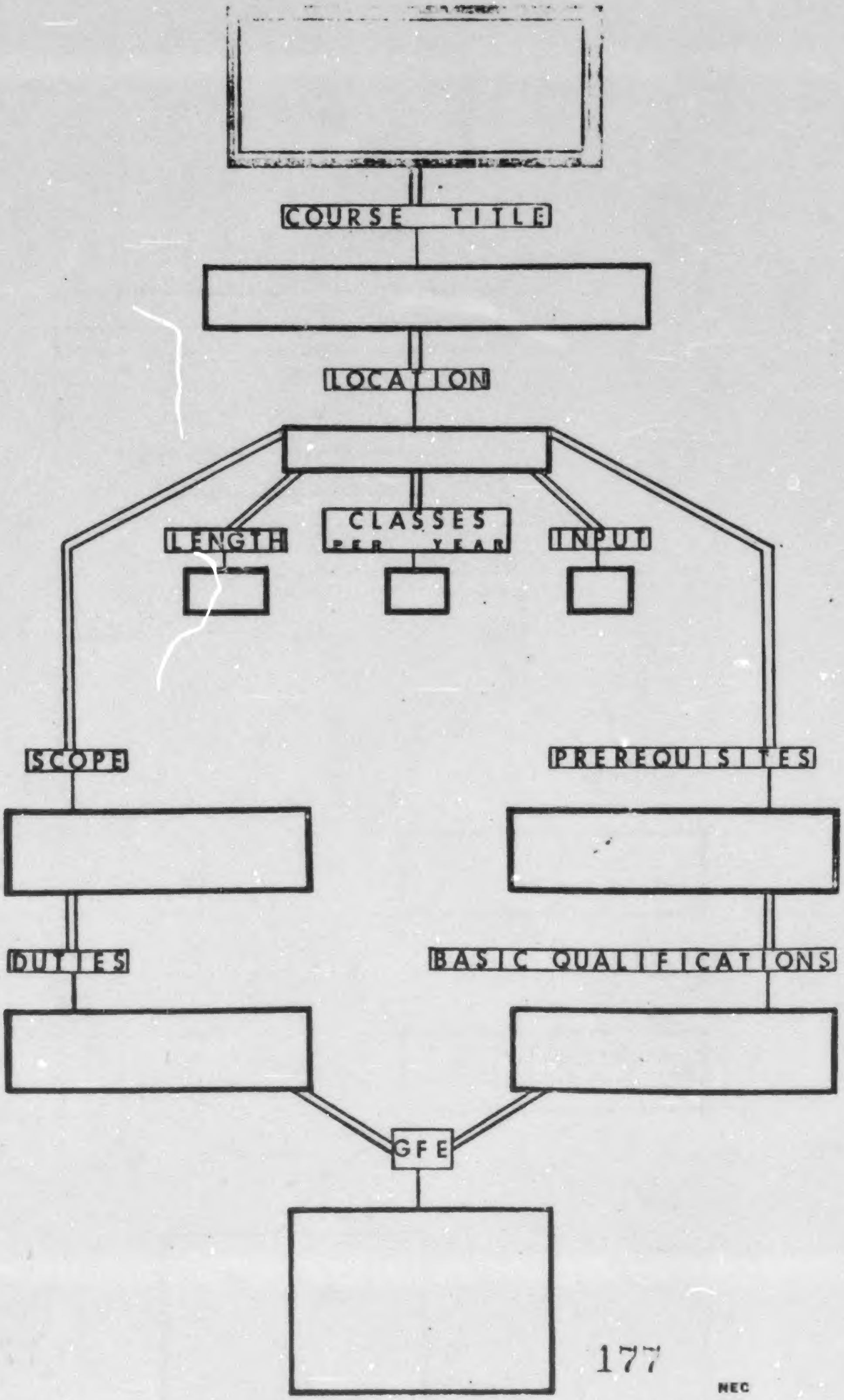
GFE

Numerous Navy Peculiar Equipment

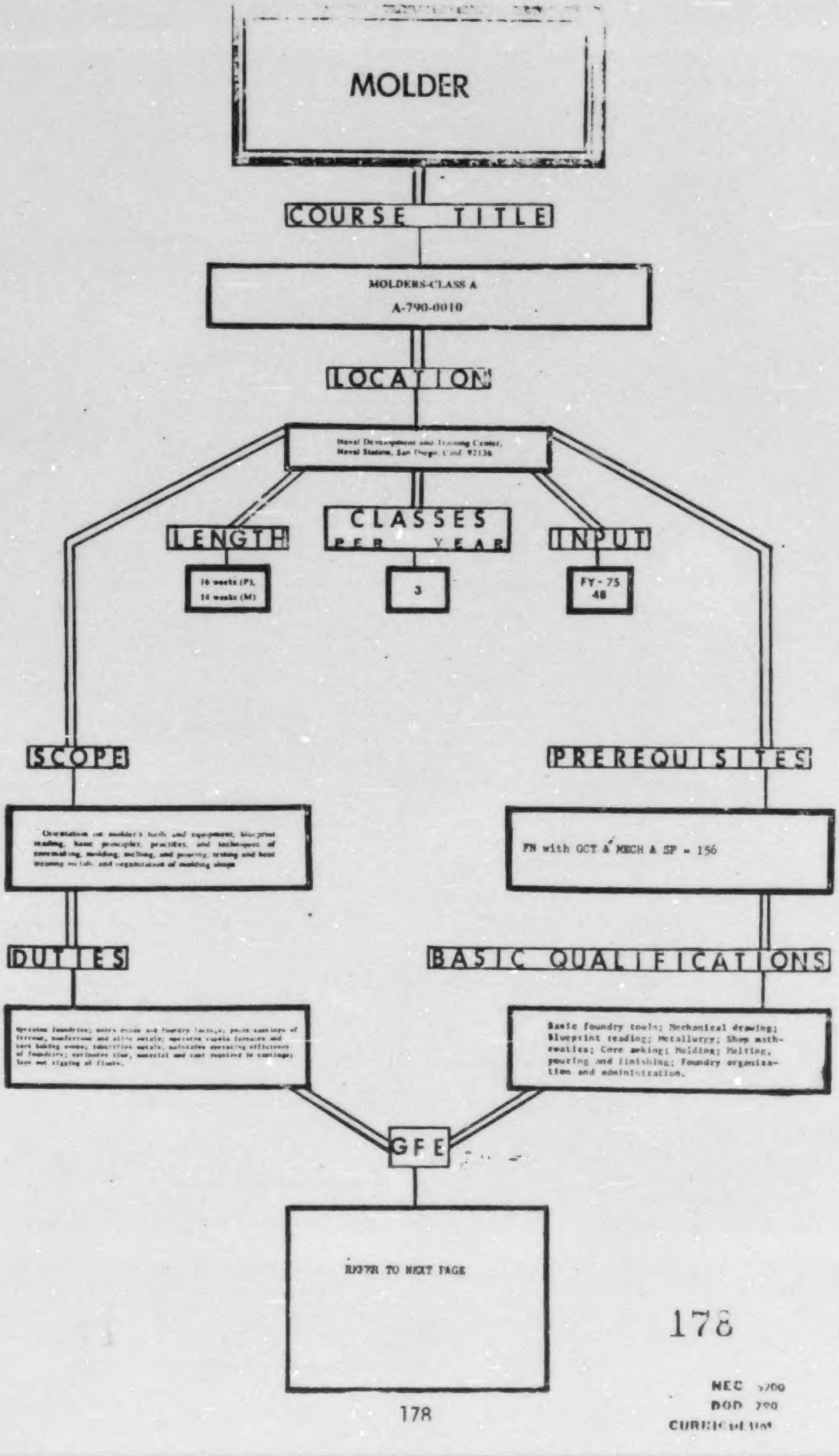
Refer to Curriculum for Additional

Information

NEC 4700
DOD 651
[illegible]


COURSE TITLE
LOCATION
LENGTH
CLASSES PER YEAR
INPUT
SCOPE
PREREQUISITES
DUTIES
BASIC QUALIFICATIONS
GFE

NEC
DOD
CURRICULUM



MOLDER

COURSE TITLE

MOLDERS-CLASS A
A-790-0010

LOCATION

Naval Development and Training Center,
Naval Station, San Diego, Calif. 92136

LENGTH

10 weeks (P),
14 weeks (M)

CLASSES PER YEAR

3

INPUT

FY-75
48

SCOPE

Orientation on molder's tools and equipment, blueprint reading, basic principles, practices, and techniques of coremaking, molding, melting, and pouring, testing and heat treating metals, and organization of molding shops

PREREQUISITES

FN with GCT & MECH & SP = 156

DUTIES

Operates foundries; makes molds and foundry facings; pours castings of ferrous, nonferrous and alloy metals; operates cupola furnaces and core baking ovens, identifies metals, maintains operating efficiency of foundries; estimates time, material and cost required in castings; lays out rigging of flasks.

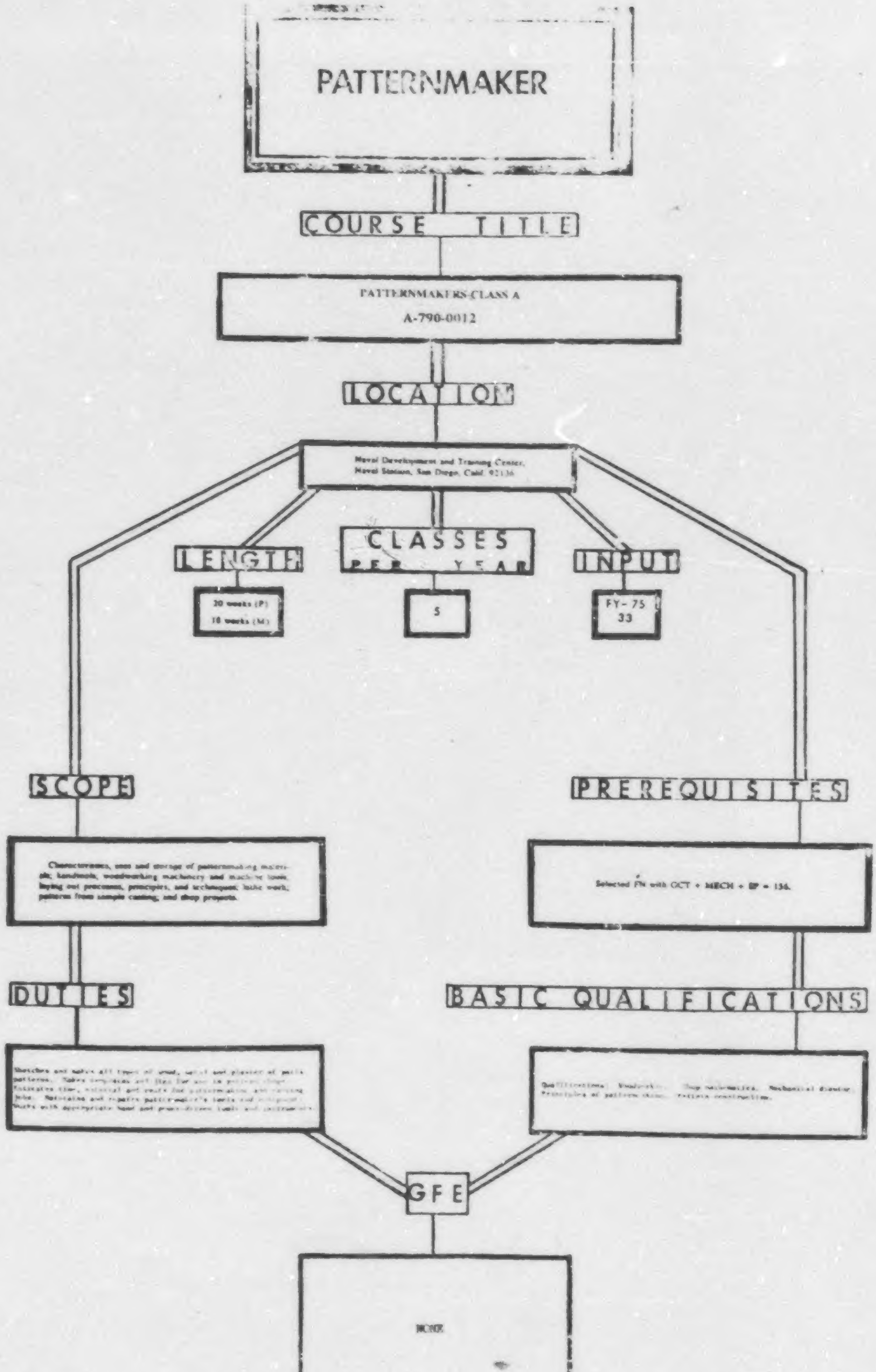
BASIC QUALIFICATIONS

Basic foundry tools; Mechanical drawing; Blueprint reading; Metallurgy; Shop mathematics; Core making; Molding; Melting, pouring and finishing; Foundry organization and administration.

GFE

REFER TO NEXT PAGE

NEC 5700
DOD 790
CURRICULUM



PATTERNMAKER

COURSE TITLE

PATTERNMAKERS-CLASS A
A-790-0012

LOCATION

Naval Development and Training Center,
Naval Station, San Diego, Calif. 92136

LENGTH

20 weeks (P)
10 weeks (M)

CLASSES PER YEAR

5

INPUT

FY-75
33

SCOPE

Characteristics, uses and storage of patternmaking materials; handtools, woodworking machinery and machine tools; laying out processes, principles, and techniques; lathe work; patterns from sample casting; and shop projects.

PREREQUISITES

Selected FN with GCT + MECH + BP = 156.

DUTIES

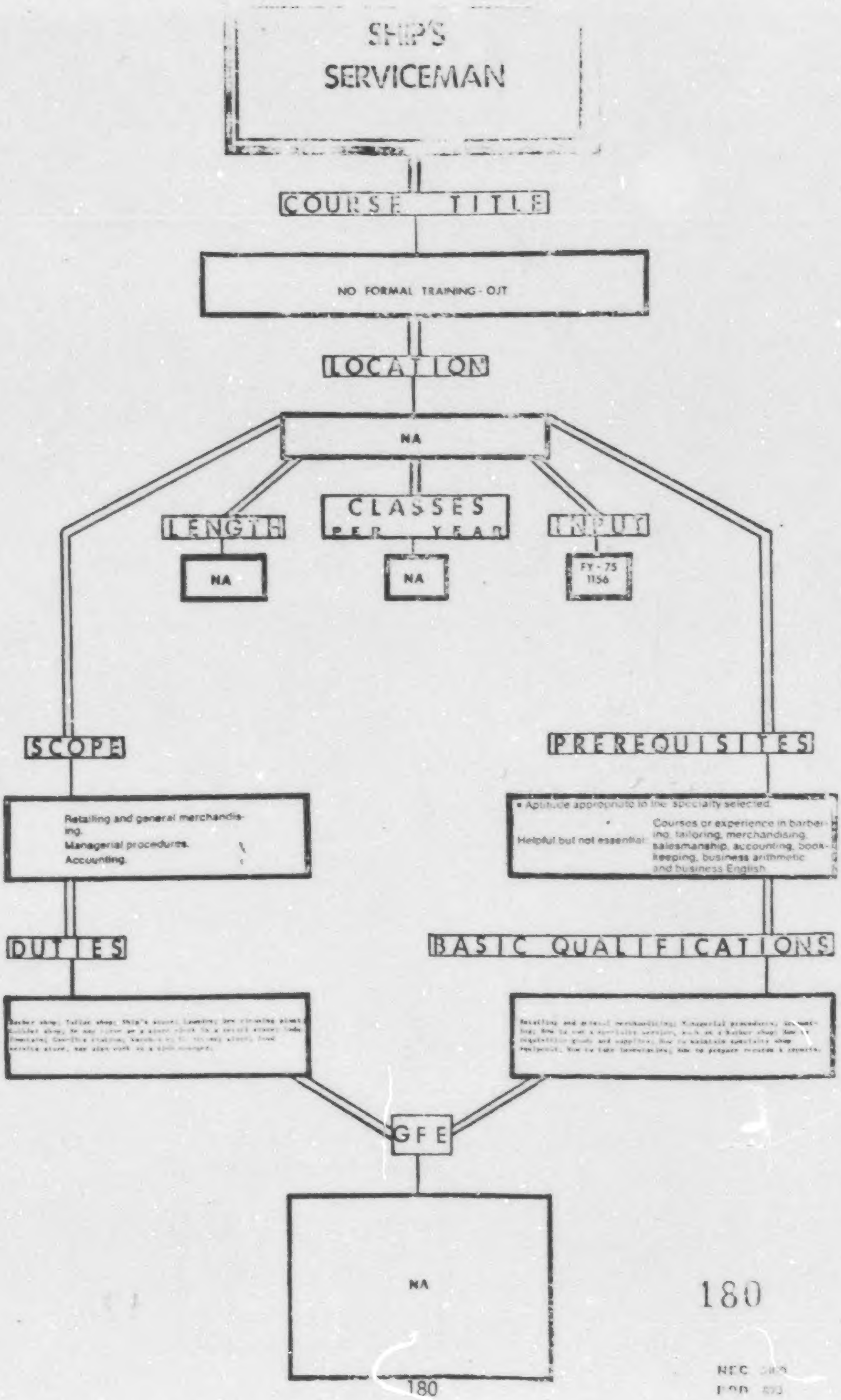
Sketches and makes all types of wood, metal and plaster of paris patterns. Makes templates and jigs for use in pattern shops. Estimates time, material and costs for patternmaking and carving jobs. Maintains and repairs patternmaker's tools and equipment. Works with appropriate hand and power-driven tools and instruments.

BASIC QUALIFICATIONS

Qualifications: Woodwork[illegible]. Shop mathematics. Mechanical drawing. Principles of patternmaking. Pattern construction.

GFE

NONE


SHIP'S
SERVICEMAN
COURSE TITLE
NO FORMAL TRAINING - OJT
LOCATION
NA
LENGTH
NA
CLASSES PER YEAR
NA
INPUT
FY - 75
1156
SCOPE
PREREQUISITES
DUTIES
BASIC QUALIFICATIONS
GFE
NA

Retailing and general merchandising.
Managerial procedures.
Accounting.

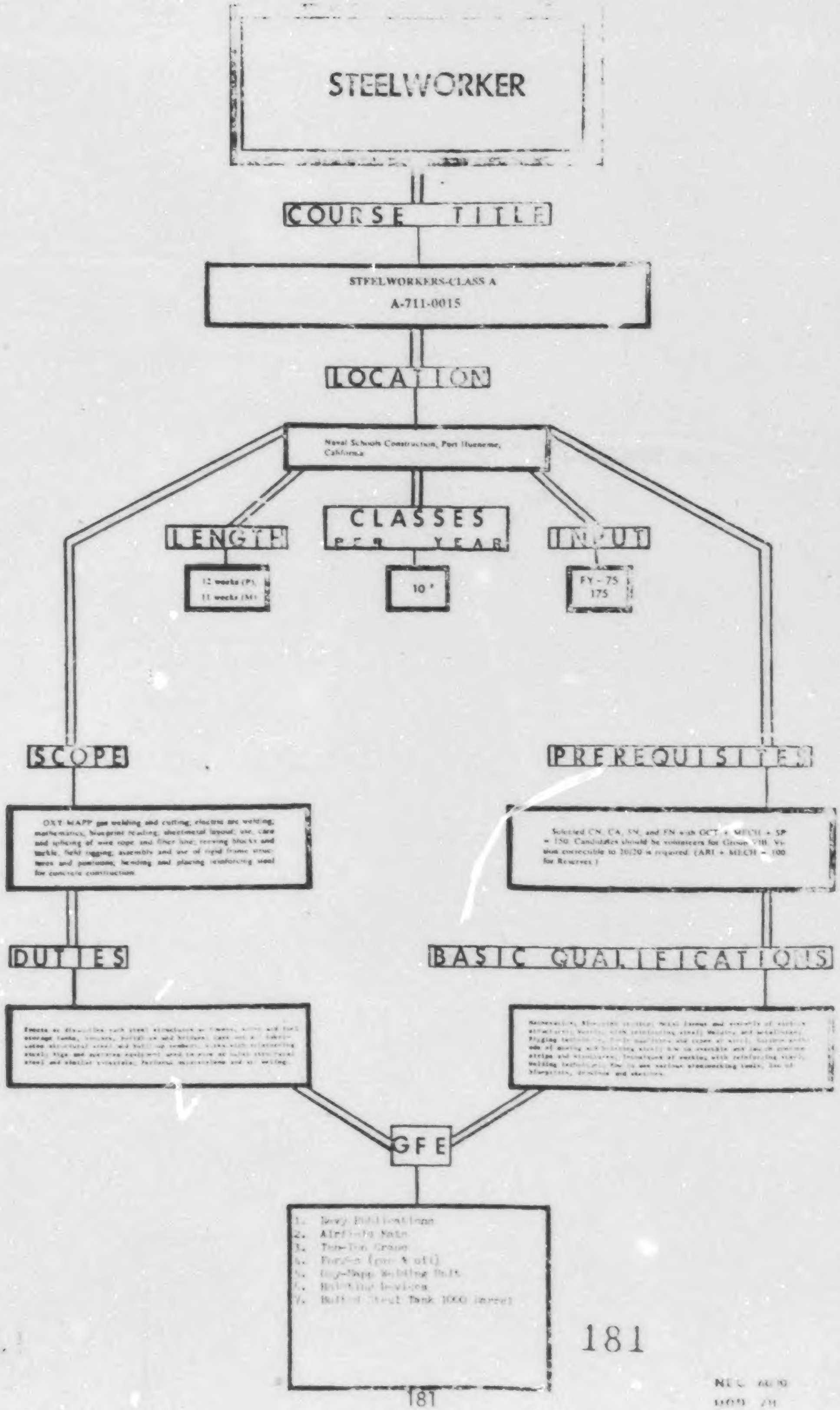
- Aptitude appropriate to the specialty selected.

Helpful but not essential: Courses or experience in barbering, tailoring, merchandising, salesmanship, accounting, bookkeeping, business arithmetic and business English.

Barber shop; Tailor shop; Ship's store; Laundry; Dry cleaning plant; Cobbler shop; He may serve as a store clerk in a retail store; Soda fountain; Gasoline station; [illegible] food service store, may also work as a [illegible].

Retailing and general merchandising; Managerial procedures; Accounting; How to run a specialty service, such as a barber shop; how to requisition goods and supplies; How to maintain specialty shop equipment; How to take inventories; how to prepare records & reports.

NEC [illegible]
EOD [illegible]
CURRICULUM



STEELWORKER

COURSE TITLE

STEELWORKERS-CLASS A
A-711-0015

LOCATION

Naval Schools Construction, Port Hueneme, California

LENGTH

12 weeks (P),
11 weeks (M)

CLASSES PER YEAR

10 *

INPUT

FY - 75
175

SCOPE

OXY-MAPP gas welding and cutting; electric arc welding; mathematics; blueprint reading; sheetmetal layout; use, care and splicing of wire rope and fiber line; reeving blocks and tackle; field rigging; assembly and use of rigid frame structures and pontoons; bending and placing reinforcing steel for concrete construction.

PREREQUISITES

Selected CN, CA, SN, and FN with GCT + MECH + SP = 150. Candidates should be volunteers for Group VIII. Vision correctible to 20/20 is required. (ARI + MECH = 100 for Reserves.)

DUTIES

Erects or dismantles such steel structures as towers, [illegible] and fuel storage tanks, hangars, buildings and bridges; lays out and fabricates structural steel and built-up members; works with reinforcing steel; rigs and operates equipment used to move or hoist structural steel and similar materials; performs oxyacetylene and arc welding.

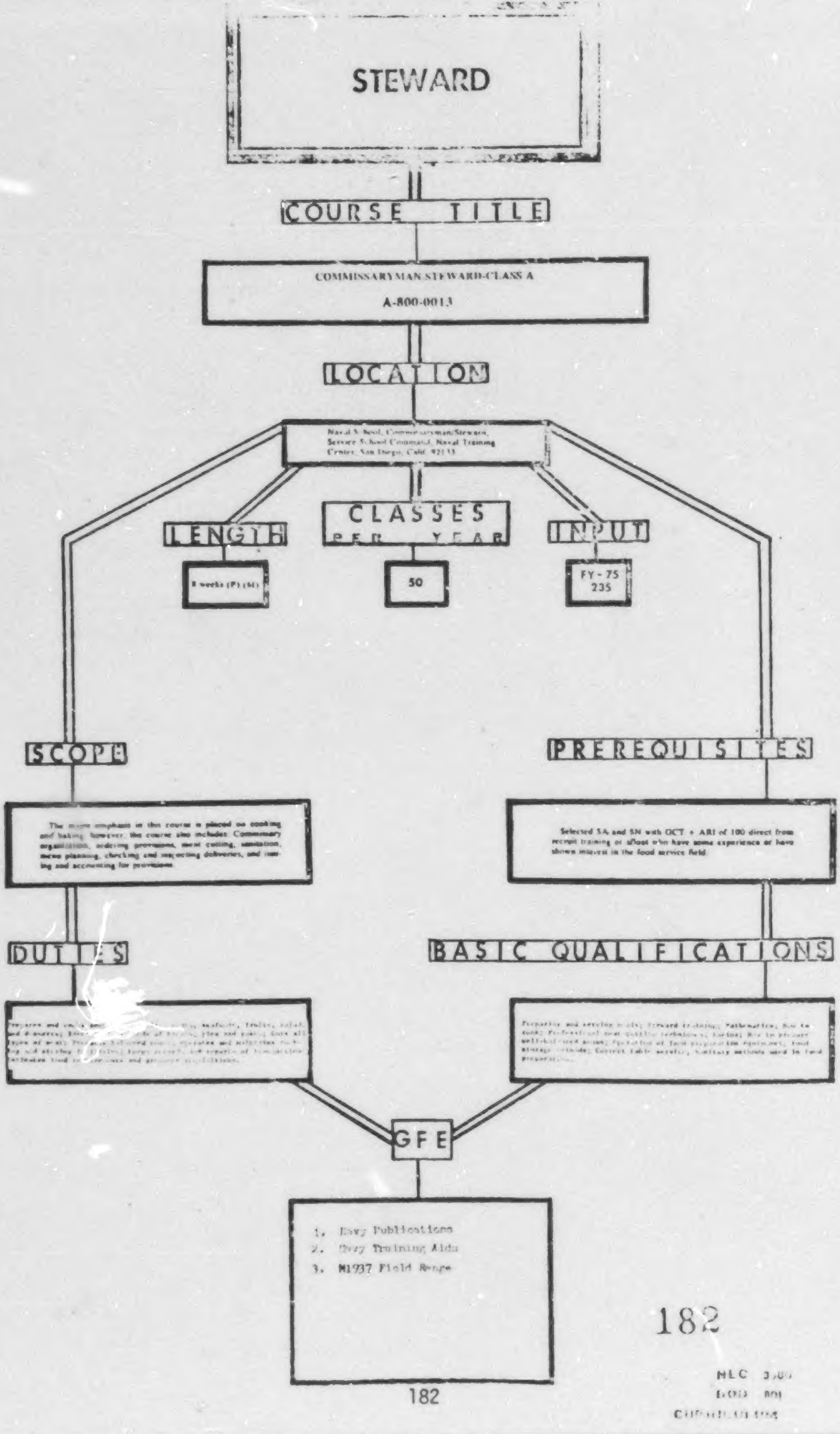
BASIC QUALIFICATIONS

Mathematics; Blueprint reading; Metal layout and assembly of various structures; Metals, with reinforcing steel; Welding and metallurgy; Rigging techniques; [illegible] qualities and types of steel; [illegible] methods of moving and hoisting steel; How to assemble and [illegible] strips and [illegible]; Techniques of working with reinforcing steel; Welding techniques; How to use various steelworking tools; Use of blueprints, drawings and sketches.

GFE

1. Navy Publications
2. Airfield Mats
3. Ten-Ton Crane
4. Forges (gas & oil)
5. Oxy-Mapp Welding Unit
6. Hoisting Devices
7. Bolted Steel Tank 1000 Barrel

NEC [illegible]
DOD 711
[illegible]



STEWARD

COURSE TITLE

COMMISSARYMAN STEWARD-CLASS A

A-800-0013

LOCATION

Naval School, Commissaryman/Steward,
Service School Command, Naval Training
Center, San Diego, Calif. 92133

LENGTH

8 weeks (P) (M)

CLASSES PER YEAR

50

INPUT

FY-75
235

SCOPE

The major emphasis in this course is placed on cooking and baking; however, the course also includes: Commissary organization, ordering provisions, meat cutting, sanitation, menu planning, checking and inspecting deliveries, and issuing and accounting for provisions.

PREREQUISITES

Selected SA and SN with GCT + ARI of 100 direct from recruit training or afloat who have some experience or have shown interest in the food service field.

DUTIES

Prepares and cooks [illegible] seafoods, fruits, salad and desserts; Bakes [illegible] of breads, pies and pastry; Cuts all types of meat; Prepares balanced menus; Operates and maintains cooking and storing [illegible]; Keeps records and reports of transactions [illegible] food [illegible] and prepares requisitions.

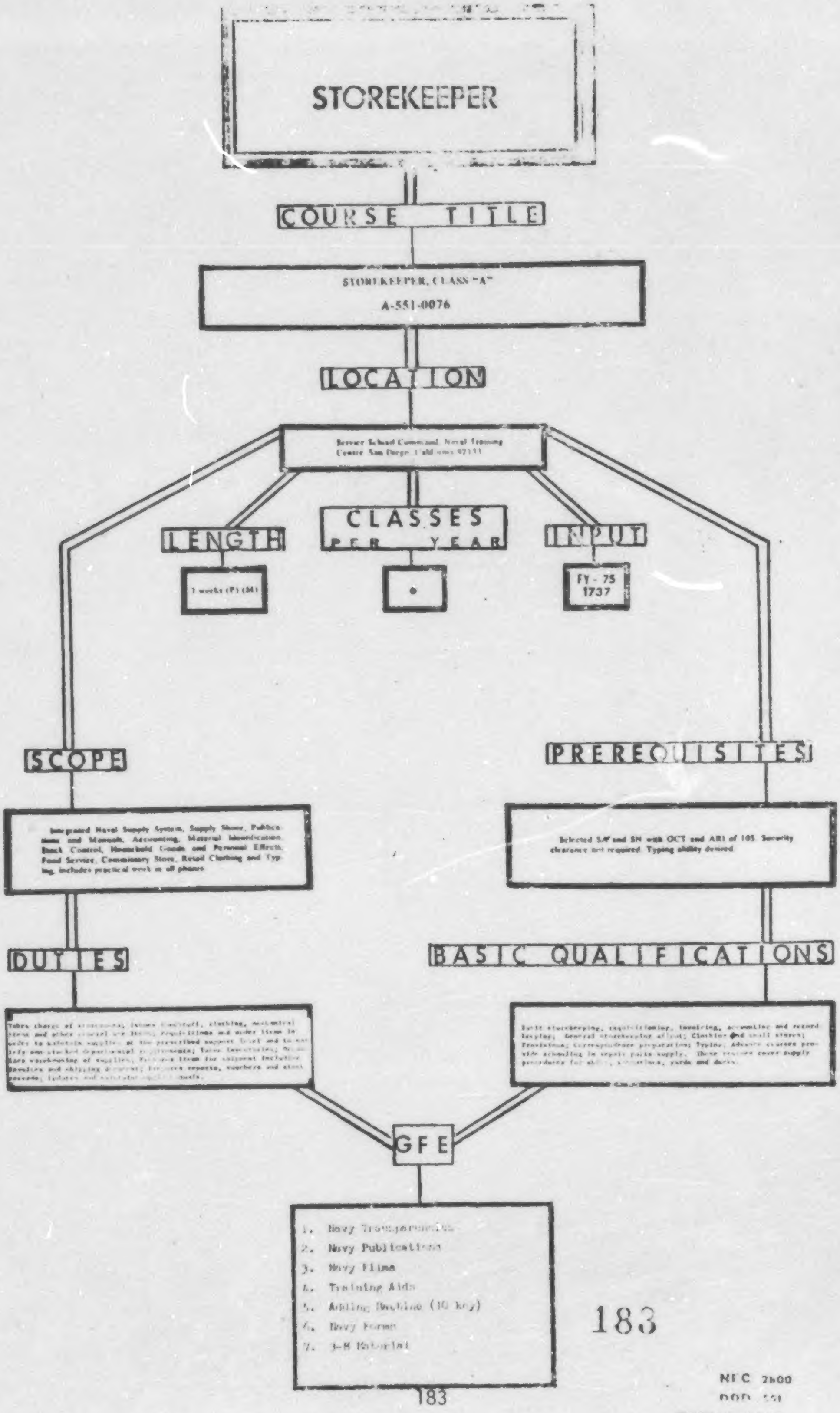
BASIC QUALIFICATIONS

Preparing and serving meals; Steward training; Mathematics; How to cook; Professional meat cutting techniques; Baking; How to prepare well-balanced menus; Operation of food preparation equipment; Food storage methods; Correct table service; Sanitary methods used in food preparation.

GFE

1. Navy Publications
2. Navy Training Aids
3. M1937 Field Range

NEC 3,00
DOD 801
[illegible]



STOREKEEPER

COURSE TITLE

STOREKEEPER, CLASS "A"
A-551-0076

LOCATION

Service School Command, Naval Training Centre, San Diego, California 92133

LENGTH

7 weeks (P) (M)

CLASSES PER YEAR

●

INPUT

FY - 75
1737

SCOPE

Integrated Naval Supply System, Supply Stores, Publications and Manuals, Accounting, Material Identification, Stock Control, Household Goods and Personal Effects, Food Service, Commissary Store, Retail Clothing and Typing, includes practical work in all phases.

PREREQUISITES

Selected SA and SN with GCT and ARI of 105. Security clearance not required. Typing ability desired.

DUTIES

Takes charge of storerooms; issues foodstuff, clothing, mechanical items and other general use items; requisitions and order items in order to maintain supplies at the prescribed support level and to satisfy non-stocked departmental requirements; Takes inventories; [illegible] warehousing of supplies; Prepares items for shipment including invoices and shipping documents; Prepares reports, vouchers and stock records; Updates and maintains supply manuals.

BASIC QUALIFICATIONS

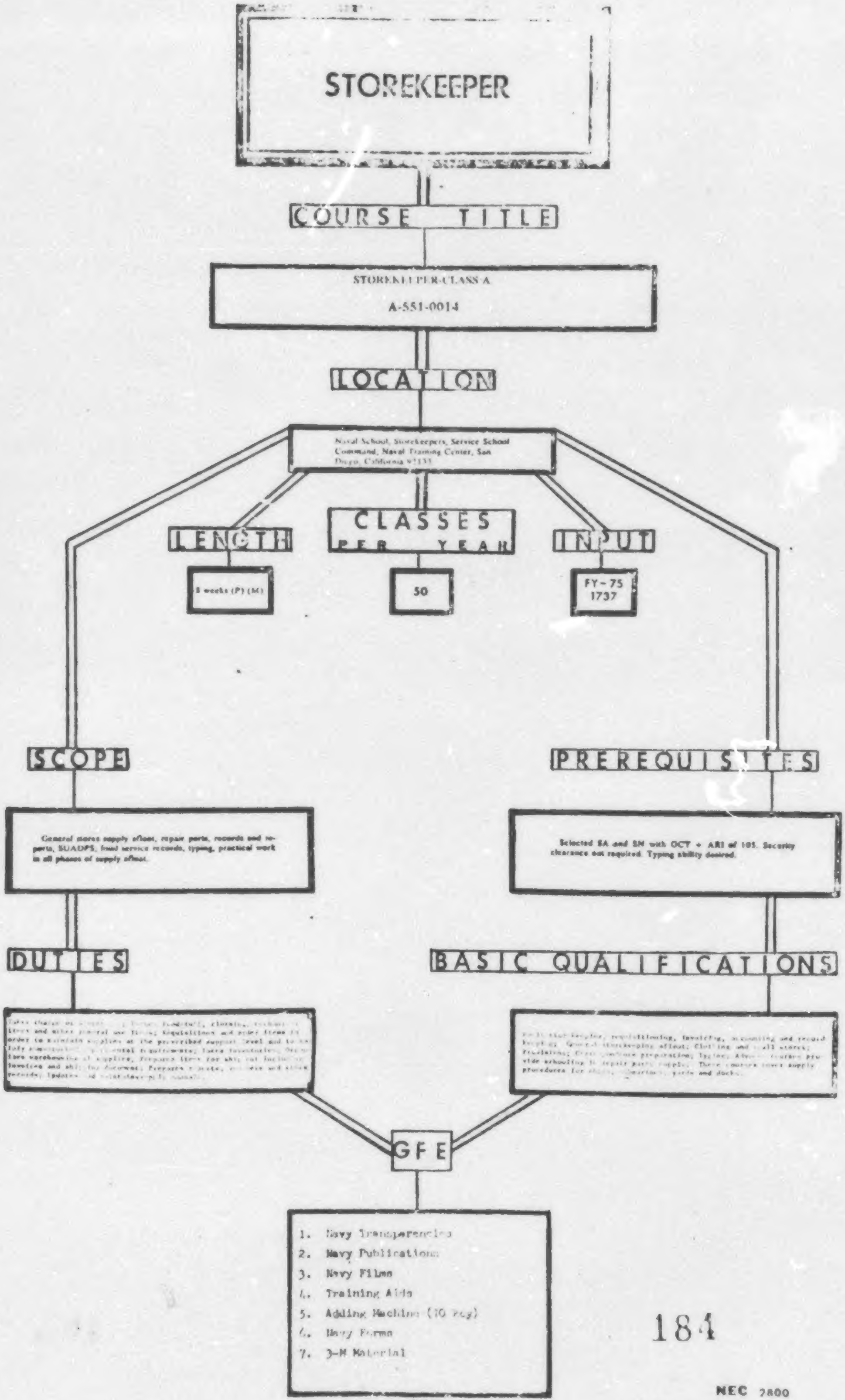
Basic storekeeping, requisitioning, invoicing, accounting and record keeping; General storekeeping afloat; Clothing and small stores; Provisions; Correspondence preparation; Typing. Advance courses provide schooling in repair parts supply. These courses cover supply procedures for ships, activities, yards and docks.

GFE

1. Navy Transparencies
2. Navy Publications
3. Navy Films
4. Training Aids
5. Adding Machine (10 key)
6. Navy Forms
7. 3-M Material

183

NEC 2600
DOD 551
CURIGSHLR



STOREKEEPER

COURSE TITLE

STOREKEEPER-CLASS A
A-551-0014

LOCATION

Naval School, Storekeepers, Service School Command, Naval Training Center, San Diego, California 92133

LENGTH

8 weeks (P) (M)

CLASSES PER YEAR

50

INPUT

FY-75
1737

SCOPE

General stores supply afloat, repair parts, records and reports, SUADPS, food service records, typing, practical work in all phases of supply afloat.

PREREQUISITES

Selected SA and SN with OCT + ARI of 105. Security clearance not required. Typing ability desired.

DUTIES

Takes charge of [illegible], [illegible] foodstuffs, clothing, technical items and other general use items; Requisitions and order items in order to maintain supplies at the prescribed support level and to be fully [illegible] [illegible] requirements; Takes inventories; [illegible] [illegible] warehousing of supplies; Prepares items for shipment including invoices and shipping documents; Prepares reports, [illegible] and other records; Updates and maintains supply manuals.

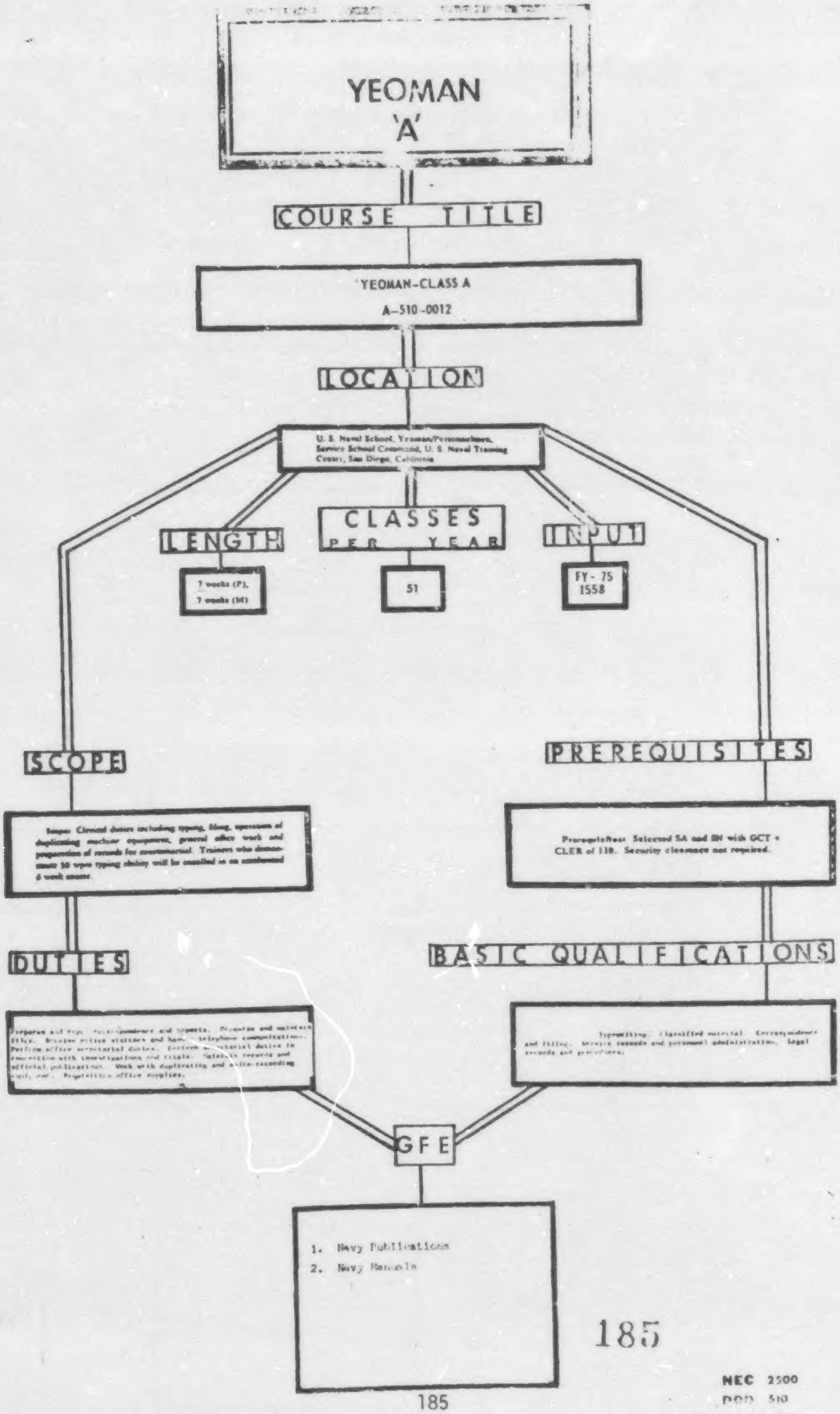
BASIC QUALIFICATIONS

[illegible] stock keeping, requisitioning, invoicing, accounting and record keeping; General storekeeping afloat; Clothing and small stores; Regulations; [illegible] [illegible] preparation; Typing; Advanced courses provide schooling in repair parts supply. These courses cover supply procedures for ships, [illegible], yards and docks.

GFE

1. Navy Transparencies
2. Navy Publications
3. Navy Films
4. Training Aids
5. Adding Machine (10 Key)
6. Navy Forms
7. 3-M Material

NEC 2800
DOD 551
CURRICULUM



YEOMAN 'A'

COURSE TITLE

YEOMAN-CLASS A
A-510-0012

LOCATION

U. S. Naval School, Yeoman/Personnelmen, Service School Command, U. S. Naval Training Center, San Diego, California

LENGTH

7 weeks (P),
7 weeks (M)

CLASSES PER YEAR

51

INPUT

FY- 75
1558

SCOPE

Scope: Clerical duties including typing, filing, operation of duplicating machine equipment, general office work and preparation of records for courtsmartial. Trainees who demonstrate 30 wpm typing ability will be enrolled in an accelerated 6 week course.

PREREQUISITES

Prerequisites: Selected SA and SN with GCT + CLER of 110. Security clearance not required.

DUTIES

Prepare and type correspondence and reports. Organize and maintain files. Receive office visitors and handle telephone communications. Perform office secretarial duties. Perform secretarial duties in connection with investigations and trials. Maintain records and official publications. Work with duplicating and audio-recording equipment. Requisition office supplies.

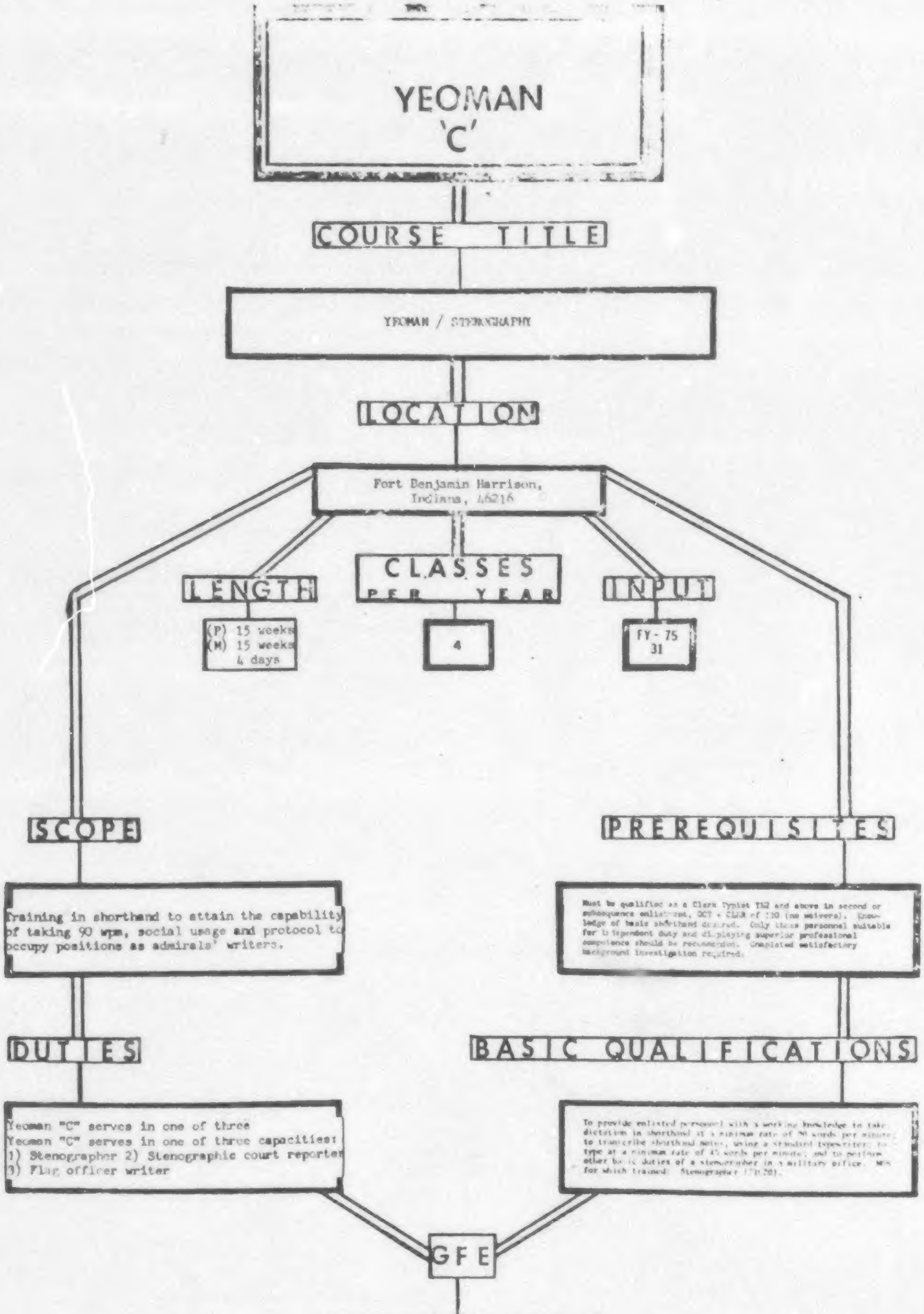
BASIC QUALIFICATIONS

Typewriting. Classified material. Correspondence and filing. Service records and personnel administration. Legal records and procedures.

GFE

1. Navy Publications
2. Navy Manuals

NEC 2500
DOD 510
CURRICULUM



YEOMAN
'C'

COURSE TITLE

YEOMAN / STENOGRAPHY

LOCATION

Fort Benjamin Harrison,
Indiana, 46216

LENGTH

(P) 15 weeks
(M) 15 weeks
4 days

CLASSES PER YEAR

4

INPUT

FY-75
31

SCOPE

Training in shorthand to attain the capability of taking 90 wpm, social usage and protocol to occupy positions as admirals' writers.

PREREQUISITES

Must be qualified as a Clerk Typist YN2 and above in second or subsequence enlistment, GCT + CLER of 120 (no waivers). Knowledge of basic shorthand desired. Only those personnel suitable for independent duty and displaying superior professional competence should be recommended. Completed satisfactory background investigation required.

DUTIES

Yeoman "C" serves in one of three
Yeoman "C" serves in one of three capacities:
1) Stenographer 2) Stenographic court reporter
3) Flag officer writer

BASIC QUALIFICATIONS

To provide enlisted personnel with a working knowledge to take dictation in shorthand at a minimum rate of 90 words per minute; to transcribe shorthand notes, using a standard typewriter; to type at a minimum rate of 45 words per minute; and to perform other basic duties of a stenographer in a military office. MOS for which trained: Stenographer (71C20).

GFE

1. Navy Publications

2. Navy Manuals

186

NEC 2514
DOD 511
CURRICULUM

APPENDIX F

ANALYSIS OF CIVILIAN VOCATIONAL TRAINING (U.S. MARINE CORPS RESERVE)

TABLE F-1. ANALYSIS OF CIVILIAN VOCATIONAL TRAINING, U. S. MARINE CORPS RESERVE

TRAINING COURSE	MOS	INSTITUTION	NUMBER STUDENTS	COURSE HOURS	TOTAL COST	COST PER STUDENT	COST PER HOUR
1. Welding Shop	1316	Lawrence Regional Vocational High School	8	96	$ 1,252.80	$ 156.60	$ 1.63
2. Machine Shop	2161	Lawrence Regional Vocational High School	8	96	1,252.80	156.60	1.63
3. French	0250	Notre Dame College	1	144	158.33	158.33	1.10
4. French	8611	Notre Dame College	5	144	831.65	158.33	1.10
5. Radio	2800	Delehanty Institute, School of TV & Electronics	30	272	13,674.90	455.83	1.68
6. Radio & TV Electronics	2800	Sylvania Technical School	30	300	27,000.00	900.00	3.00
7. Diesel Engines	2141	Liverpool Sr. High School	24	100	1,200.00	50.00	.50
8. Gas Engines	3516	Liverpool Sr. High School	8	100	400.00	50.00	.50
9. Basic Electronics	2841	Liverpool Sr. High School	3	20	36.00	12.00	.60
10. Auto Mechanics	3516 & 3537	Middlesex Co. Vocational Technical Adult Evening School	6	30	60.00	10.00	.33
11. Welding	3519	Middlesex Co. Vocational Technical Adult Evening School	3	72	75.00	25.00	.35
12. Diesel Engine Mechanic	3516	YMCA Automotive Technical School	2	62	590.00	295.00	4.76
13. Air Conditioning & Refrigeration	1161	Eastern Vocational Technical Adult Center	3	40	58.50	19.50	.49
14. Automotive	3516	Augusta Area Technical School	135	48	2,264.00	16.77	.35
15. Communications Technician	2800	ITT Technical Institute	6	96	1,680.00	280.00	2.92
16. Basic Electronics	2811, 2818 & 2841	Wichita Vocational/ Technical School	12	300	1,350.00	112.50	.38
17. TV Repair		Wichita Vocational/ Technical School	12	100	360.00	30.00	.30
18. Plumbing	1121	Chemeketa Community College	10		1,300.00	130.00	

TABLE F-1. ANALYSIS OF CIVILIAN VOCATIONAL TRAINING, U. S. MARINE CORPS RESERVE (continued)

TRAINING COURSE	MOS	INSTITUTION	NUMBER STUDENTS	COURSE HOURS	TOTAL COST	COST PER STUDENT	COST PER HOUR
19. Electrician	1141	Chemeketa Community College	10		$ 1,300.00	$ 130.00	$
20. Automotive Engines	3516	Los Rios Community College	20	144	3,000.00	150.00	1.04
21. Automotive Mechanics	3516	Aerco Trade Schools	15	144	4,500.00	300.00	2.08
22. Minor Machine Shop Operation		J. M. Perry	1	105	88.00	88.00	.84
23.	1371	Portland Community College	10	72	1,200.00	120.00	1.67
24.	3516 & 1341	Portland Community College	10	72	1,200.00	120.00	1.67
25. Merchandise Management/ Basic Bookkeeping & Business Machine Operation	4131 & 4111	Coosa Valley Vocational/ Technical School	20	60	500.00	25.00	.42
26. Welding	6042	Welding Trade School	2	540	2,690.00	1,345.00	2.49
27. Welding	6634	Welding Trade School	2	416	3,934.00	1,967.00	4.73
28. Auto Mechanics & Advanced Auto Tuneup	3500 3516 & 3531	Aurora Technical Center	9	4	648.00	72.00	18.00
29. Shop Safety, Tools Rigging, Concrete	1371	Eastern Montgomery County Area Vocational/Technical School	7	96	817.46	116.78	1.22
30. Electrical Systems	1141	Eastern Montgomery County Area Vocational/Technical School	6	96	1,142.46	190.41	1.98
NOTE: Omit numbers 3, 4, 18, 19, 23, 24 & 28 from average figures.			363	3333	$67,925.92	$6,751.99	$34.22
		Average:	15.8	144.9	$ 2,953.30	$ 293.56	$ 1.49

APPENDIX G

PROPOSED CNET INSTRUCTION 1550___

NOTE: This appendix is intended to stand alone. Therefore, the pages are numbered separately from the rest of the report. It is intended to be removed from the report and used as is.

CHIEF OF NAVAL EDUCATION AND TRAINING
NAVAL AIR STATION
PENSACOLA, FLORIDA 32508

CNETINST 1550._
Code N-35

CNET INSTRUCTION 1550._

Subj: VOTECS (Vocational/Technical Schools) Basic Skills Training from Commercial Sources

Ref: (a) CNETINST 1550.1
(b) NAVPERS 18068C

Encl: (1) VOTECS Budget Estimate
(2) VOTECS Training Request
(3) Unit VOTECS Completion Report

1. Purpose. To provide information, policy guidance, and implementing instructions pertaining to the use of VOTECS (Vocational/Technical Schools) training from commercial sources to support individual rate training in accordance with references (a) and (b).

2. General Information

a. The VOTECS program evolved from a jointly sponsored Navy and Marine Corps effort to provide cost effective and practical alternative solutions to current training problems in the basic skills area. The capability of today's technical training available at VOTECS is a virtually untapped source of quality basic technical training. Pilot VOTECS programs within the Marine Corps have demonstrated the capability of selected public and private trade schools and community colleges to provide basic technical training in support of individual Military Occupational Specialties qualification in military-civilian common skill areas. Such a program has like application to Navy rate training.

b. The use of VOTECS training is appropriate as an adjunct to in-service school training when:

(1) Impending operational commitments preclude the use of service schools to provide a sufficient number of basic rate trained personnel due to the time frame involved.

(2) Required training is not available from service or inter-service schools.

(3) Extended travel and other expenses preclude the use of service schools.

(4) Unit commitments preclude the use of service schools.

(5) Inadequate facilities, non-availability of qualified instructors or lack of other resources dictate the best interest of the Navy would be served by use of the VOTECS program to provide new or additional technical qualification in the event of restructuring of a particular rate qualification, change of fleet mission or in support of mobilization training.

(6) Enlistment incentives program commitments can only be met through use of the VOTECS program.

(7) A general mobilization occurs.

(8) Peak loading at service schools cannot be met by existing resources.

(9) Low volume student input results in commercial training being more cost effective than service training.

(10) Training effectiveness can be significantly increased through the utilization of commercial sources.

c. Program Concept. Operational training requirements for VOTECS training shall be supported by AVSCs (Area VOTECS Support Centers) located at major military installations. Such centers shall act as coordinating points of contact for all units within specified geographic areas. Upon receipt of command approval for such training, AVSCs shall assist in selection of appropriate training sites, coordinate curriculums, provide contractual assistance in obtaining such training, and provide such other support as required to conduct, monitor, evaluate and maintain a viable training course within VOTECS parameters. The conduct of such training must be a cooperative effort on the part of both the requesting command and the AVSC.

d. Additional Information. Implementation packages consisting of a general VOTECS training specification, initial lists of surveyed institutions capable of providing VOTECS skill training, procurement guidelines, and sample curriculums shall be provided to AVSCs. The general specification for VOTECS training supported by an approved course curriculum forms the basic skill training package to be procured by base contracting officers. Direct communication between Plans and Programs Divisions responsible for training, AVSCs, contracting officers, and formal schools having specialty technical cognizance is appropriate.

e. Although a cost limit has not been established, the total cost of a program must be justified by the quality of the curriculum. Generally, the total amount of a VOTECS course, including the purchase of required supplies, should not exceed $5/instruction hour/student.

3. Action

a. CNET (N-2) shall provide central policy and overall management functions to include budget submissions and funding responsibilities for the VOTECS program (see Figure 1).

b. CNETS (N-3) shall provide functional management responsibilities for the VOTECS program to include implementation of AVSC, funding control for the centers, and command technical approval of curriculums as required.

c. The following commands are authorized to establish AVSCs under CNETS guidance to provide field support of the VOTECS program:

(1) Chief of Naval Technical Training
Naval Air Station, Memphis (75)
Millington, TN 38054

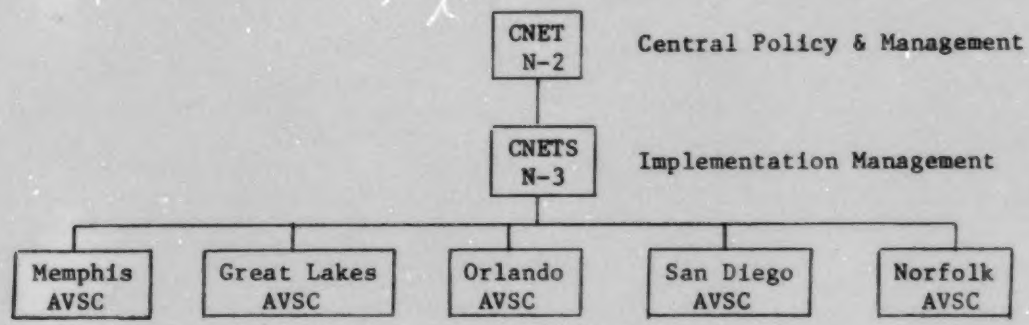
(2) Commander
Naval Training Center
Great Lakes, IL 60088

(3) Commander
Naval Training Center
Orlando, FL 32813

(4) Commander
Naval Training Center
San Diego, CA 92133

(5) Commanding Officer
Fleet Training Center
Norfolk, VA 23511

d. Delegation of Authority. The fleet commands designated in paragraph c above are authorized to delegate responsibilities within their commands to provide functional efficiency of VOTECS program operation.


CNET N-2
Central Policy & Management
CNETS N-3
Implementation Management
Memphis AVSC
Great Lakes AVSC
Orlando AVSC
San Diego AVSC
Norfolk AVSC

AVSC--Area VOTECS Support Center
field service to units within
general geographic area.

Figure 1. VOTECS Structure for Basic Skills Training

4. Selection of Personnel. The selection of personnel for VOTECS training must meet the following criteria:

a. Personnel must be able to use the training in carrying out the duties of their T/O billet or the T/O billet to which they will be assigned upon completion of VOTECS.

b. Personnel must have the following minimum periods of obligated service remaining after completion of VOTECS. Extensions of enlistment should be executed, if required.

Length of Course	Obligated Service
Excess of 150 hours	2 years
Between 80 and 150 hours	1 year
Less than 80 hours	no requirement

c. Following identification of prospective students on the basis of their past performance, the prerequisites for Navy formal schools should be used as a guide in determining additional individual qualifications necessary for successful completion of VOTECS training.

5. Selection of Schools. Prior to coordination with officials of a selected VOTECS institution, the AVSC must ascertain the following criteria:

a. Accreditation. VOTECS instruction must be conducted by a Federal or state approved institution or by nationally known civilian firms to warrant consideration. The following agencies may be contacted to assist in determining accreditation:

(1) Veterans Administration

(2) National Association of Trade and Technical Schools

(3) State Board of Education

(4) State Bureau of Schools Approval

(5) Department of Health, Education and Welfare

(6) Regional Accreditation Associations

b. Location. The optimum VOTECS training site would be on base. The VOTECS institution should be within reasonable commuting distance from the student's home base to minimize the administrative support problems. The key to cost-effectiveness of VOTECS training primarily results from using military housing and rationing to support such training.

6. Preparation for Training. Advance planning to initiate VOTECS training includes the following considerations:

a. Identification of required training.

b. Selection of personnel to receive training.

c. Survey of appropriate contractors (schools) to conduct training.

d. Initial planning for student housing, messing and transportation.

e. Submission of training request for approval and funding.

f. Coordination of contractor selection and award of training contract.

g. Coordination of administrative support for training to include monitoring of training.

h. Submission of report of completed training.

7. Curriculum

a. The course of study selected should directly contribute to attaining or improving rate qualification objectives contained in reference (b).

b. Individual student attendance is, in most cases, subject to the standard curriculum offered by schools. Where group enrollment can be established, schools should be requested to provide courses specifically designed to meet the needs of rate qualification.

c. In the curriculum selection process, the following courses should be avoided:

(1) Courses which consist primarily of theory when such theory is not an essential part of rate qualification (i.e., pure mathematics).

(2) Courses which teach operation and maintenance of items of equipment not currently part of the Navy inventory.

8. Uniform Requirements. Work environment and local climatic conditions should be considered in the designation of appropriate uniforms. The wearing of the seasonal Uniform of the Day is desirable. The uniform requirement is waived where the need for special clothing, i.e., safety clothing, can be demonstrated.

9. Administrative Requirements

a. Budgeting Requirements. CNTECHTRA (Chief of Naval Technical Training) shall provide estimates of VOTECS training requirements for budget purposes to reach CNET (N-2) in a format similar to enclosure (1) annually by ____________ for current year, budget year, and budget year +1 budget submissions.

b. Funding. Based upon command estimates of VOTECS training requirements, CNET shall annually provide necessary funding to AVSCs via CNETS to implement the required training. AVSCs are authorized direct contact with CNETS' designated representative to resolve conflicts or other details related to funding of the VOTECS program.

c. Unit Requests for Training. Unit requests for approval of VOTECS training (see enclosure (2)) should be directed to the appropriate AVSC listed in paragraph 3c; via operational command approval channels. An "information only" copy of each training request shall be provided to CNETS (Code N-3). It is estimated that approximately three months lead time from unit date of request for training will be required to initiate actual training.

d. VOTECS Completion Report. Upon completion of training of personnel via the VOTECS program, the unit requesting training shall submit a Unit VOTECS Completion Report (enclosure (3)) in triplicate. Copies will be distributed as follows:

Copy No. 1. Command approving agency

Copy No. 2. AVSC

Copy No. 3. CNETS (Code N-3)

e. Other Reports. Other reports are primarily operating reports as specified within the contractual package and as such are primarily for use of the AVSC and contracting officer.

10. Contracting Procedures. All contracting for VOTECS training shall meet the requirements of ASPR (Armed Services Procurement Regulations). Base contracting officers and comptrollers as well as training department personnel must understand the program to affect efficient program administration. Under separate cover, samples of the general specification for VOTECS training, sample curriculums, and VOTECS contractual notes shall be provided each AVSC to assist in coordination of the contractual and administrative support package.

11. Applicability. This document is applicable to:

a. U.S. Navy regular components.

b. U.S. Naval Reserves.

c. Career Federal employees in the support services field upon receipt of major command approval for training.

d. Inter-service personnel funded by parent service or command with CNETS approval.

VOTECS BUDGET ESTIMATE

Specialty Requiring Training	Number of Students	Cost per* Student	Total Cost	Current Year	Budget Year	Budget Year +1

---

*Includes all directly associated costs, i.e., Instruction, Transportation, Messing, Supplies, etc.

Date of Request______________
Date Training
Must be
Completed____________________

VOTECS TRAINING REQUEST

1. Reporting Unit
2. Summary of training need
3. Name and location of VOTECS
4. Number of participating personnel
5. Rating/rate for which trained
6. Starting/Completion date
7. Length of course and class schedule
8. Estimated cost per hour/student
9. Cost of required supplies (if applicable)
10. Total cost
11. Attach course curriculum as enclosure (1)

Enclosure (2)

UNIT VOTECS COMPLETION REPORT

1. Reporting Unit

2. Name/Location of VOTECS

3. Number of personnel participating by rate

4. Did any personnel fail to complete a course? Explain.

5. Were any problems encountered in contract procedures? Explain.

6. Did the successful completion of the course qualify personnel for the rate as defined in the Navy Rate Qualification Manual? If not, explain.

7. Was "hands-on training" with Navy equipment provided during the course? If so, explain.

8. Does the school warrant consideration as a future, centralized rate qualification center for other personnel?

9. Recommendations, if any, for improving the VOTECS training program. Cite problems encountered and proposed solutions.

Enclosure (3)

TOCE

TAEG

TRAINING
ANALYSIS
AND
EVALUATION
GROUP

TAEG REPORT
NO.21—2

COMMERCIAL CONTRACT TRAINING NAVY AREA VOTEC SUPPORT CENTER (AVSC) GUIDELINES

FOCUS ON THE TRAINED MAN

CE005 729 - part 2

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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13. ABSTRACT

This two-part report describes the Phase II findings of a two-phase study to determine if certain Navy skill training requirements could be satisfied through contract with qualified commercial sources. Phase I study findings presented in TAEG Report No. 13-1, December 1974, address various commercial training programs, management systems, technological advances, instructional techniques, curricula, and financial management practices potentially applicable to the Navy training system.

Whereas the initial study effort dealt with a survey and preliminary analysis of the training capability of commercial sources, the effort described in this report demonstrates the utility of the commercial contract training concept. TAEG Report 21-1 addressed the major issues concerned with source evaluation, skill analysis and selection, contractual considerations, and comparative training capability evaluation. It provides a basis for training and cost-effectiveness analyses necessary for sound management decisions subsequent to initiation of procurement action of training services from commercial sources. This report contains information useful to Area VOTEC Support Center personnel and others involved with implementation and functional management of a VOTEC program. Most importantly, TAEG Reports 21-1 and 21-2 present a plan to initiate, develop, implement, manage, and administer commercial contract

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TRAINING SPECIFICATION FOR BASIC SKILLS						
APPRENTICE TRAINING						
VOTEC TRAINING FROM COMMERCIAL SOURCES						

ABSTRACT (continued)

training programs to support appropriate active and reserve components of the Navy in the area of apprentice level basic skills training.

TAEG Report No. 21-2

COMMERCIAL CONTRACT TRAINING
NAVY AREA VOTEC SUPPORT CENTER (AVSC) GUIDELINES

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June 1975

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SECTION I

INTRODUCTION

This part of the Commercial Contract Training investigation prescribes a system for conducting Vocational/Technical (VOTEC) training on a daily basis from commercial sources. Essentially, core groups of professionals from the training, comptroller and procurement fields will be tasked under the designator Area VOTEC Support Center (AVSC) at selected Navy installations for the purpose of assisting commands during the planning, procurement and monitoring phases of the VOTEC training procurement process. The guidelines provided are not intended to provide final answers to all problems but rather to highlight probable areas of consideration that will confront those implementing the program. In addition, sections are included that contain data and basic notions that have proven worthy as a result of experience gained during past VOTEC type efforts. As with any new program, some modifications due to local conditions may be required to achieve program aims. Taken in this perspective, the included information will provide assistance during initiation of VOTEC training.

Prior to using the data within this report, personnel administering the VOTEC program should familiarize themselves with the contents of TAEG Report 21-1, Commercial Contract Training; the Training Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program (appendix A); and the curriculum for the training course to be procured.

SECTION II

VOTEC BASIC CONCEPTS

VOTEC . . .

1. Is a method of obtaining rate or rate specialty qualification training in whole or in part with On-Board-Training (OBT) follow-on training.

2. Is not intended to compete with or replace service or inter-service school training but to be an adjunct to such training during peak loading or general mobilization and coverage for nonexistent training.

3. Should be a centralized managed program for purposes of control.

4. Takes advantage of quality public and private readily available training resources.

5. Is "grass roots" in nature providing opportunity for Fleet commands to train or retrain to obtain rate qualified personnel.

6. Is cost effective for many low density rate qualification requirements.

7. Is for "basic skills" training; i.e., to provide a military occupational skill capability.

8. Is not a "pre-retirement" training program.

9. Must meet accepted standards (accreditation of recognized agency or command having skill area cognizance).

10. Must allow a degree of flexibility among AVSC's as a function of VOTEC school availability.

11. Must be accomplished within reasonable commuting distance of student's home station to be truly cost effective.

12. Should not take student personnel completely out of the military environment.

13. May require some OBT before full military certification is granted after formal VOTEC training is completed.

14. May provide recognition or credit by school institutions.

15. Must be accomplished on a basis of service need rather than nice to have or general personnel development.

16. Requires a cooperative effort by the military unit, the AVSC and procurement personnel as well as contracted institution personnel to be successful.

17. Must meet Armed Services Procurement Regulations (ASPR) criteria.

SECTION III

VOTEC COORDINATION STRUCTURE

The VOTEC coordination structure is defined as those administrative/approval channels through which a request for VOTEC training from commercial sources should pass to most efficiently affect such training.

The design of the coordination structure for VOTEC training was based upon the following precepts:

1. Policy and annual funding/budgeting responsibility should be centralized at the Chief of Naval Education and Training (CNET).

2. Functional management of AVSC's should be under the cognizance of the Chief of Naval Education and Training Support (CNETS) with AVSC's physically located at major installations having resources such as training staffs and contracting departments in existence, thus minimizing VOTEC implementation impact.

3. Basic skills training should be conducted at VOTEC institutions while Navy students remain quartered on base or station.

4. Basic skills training capability via VOTEC should be available to both the Chief of Naval Technical Training (CNTECHTRA) and Fleet users through the Training Commands, U.S. Atlantic and Pacific Fleets (COMTRALANT, COMTRAPAC).

Figure 1 depicts VOTEC support capability for Navy basic skills training via CNETS. Solid figure lines indicate established organizations in place with the capability to function as an AVSC. Dashed figure lines show areas of need for VOTEC training that could be developed with minimal effort. Figure 2 shows logical locations for initial establishment of AVSC's within CNET. Selection was based on current and projected areas requiring high density basic skills training capability. Figure 3 lists functions of separate levels of command and VOTEC institutions to affect VOTEC training.

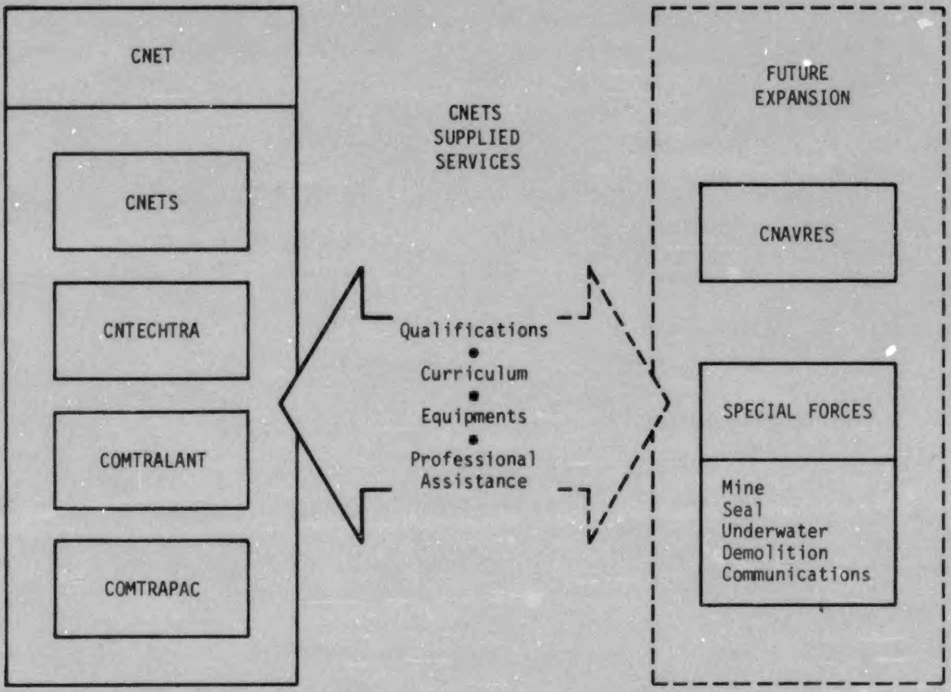
CNET
CNETS
CNTECHTRA
COMTRALANT
COMTRAPAC
CNETS SUPPLIED SERVICES
Qualifications
Curriculum
Equipments
Professional Assistance
FUTURE EXPANSION
CNAVRES
SPECIAL FORCES
Mine
Seal
Underwater
Demolition
Communications

Figure 1. VOTEC Support Capability

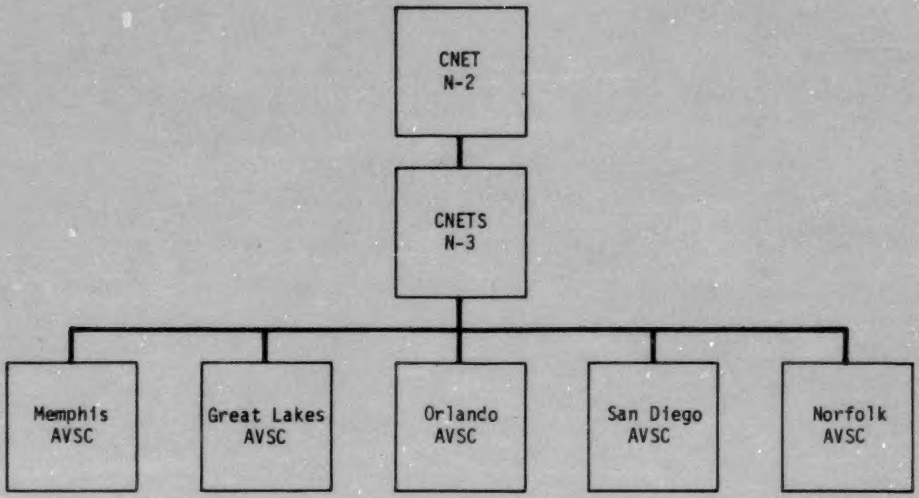
CNET
N-2
CNETS
N-3
Memphis
AVSC
Great Lakes
AVSC
Orlando
AVSC
San Diego
AVSC
Norfolk
AVSC

Figure 2. VOTEC Coordination Structure

CNET

1. Provide overall management functions for VOTEC program.
2. Provide budget support for VOTEC.
3. Determine and publish appropriate directions to operational commands and AVSC's.
4. Maintain AVSC liaison for funding, special operations, and policy directions and clarification.

FUNCTIONAL COMMANDS

1. Responsive to CNET VOTEC requirements.
2. Coordinate and approve Unit VOTEC training requests.
3. Monitor VOTEC effort as required.

UNITS

1. Determine training requirements.
2. Determine VOTEC training requirements.
3. Submit VOTEC request for training to AVSC's via command chain as required.
4. Assist and coordinate with AVSC's during implementation and conduct of training as required.
5. Submit VOTEC completion report.

AREA VOTEC SUPPORT CENTERS

1. Maintain liaison with CNETS for advisory and funding.
2. Maintain surveyed VOTEC school data.
3. Process VOTEC training requests.
4. Act as general VOTEC training agent and information center.
5. Aid in course selection.
6. Provide funding coordination.
7. Provide school selection assistance.
8. Coordinate contracting.
9. Coordinate support services for training.
10. Monitor training and coordinate support as required.
11. Provide planning data as required to CNETS or CNET.

VOTEC INSTITUTIONS

1. Provide inputs to assist in finalization of VOTEC efforts.
2. Coordinate planned VOTEC effort with school administration.
3. Negotiate VOTEC contract.
4. Provide facility, instruction, and equipment, according to contract.

Figure 3. VOTEC Command and Institution Responsibilities

SECTION IV

TYPICAL FUNCTIONAL PROCESS TO OBTAIN VOTEC TRAINING

1. Unit, service school or operational command determines the VOTEC training requirement.

2. Unit or command submits VOTEC training requirement to AVSC via functional command approval chain.

3. Functional command coordinates training request as appropriate and forwards with approval to AVSC.

4. Requesting command and AVSC select most appropriate training sources and layout basic planning.

5. AVSC provides or secures funding, initiates contractual effort with the contracting officer, and coordinates initial institutional contact(s).

6. Representatives of school, unit, contracting officer, and AVSC meet for common definition of requirements for course of instruction.

7. Contract negotiated according to ASPR and specifications for training.

8. Training initiated by school; monitored and supported by the AVSC and requesting command as appropriate via the contracting officer.

9. Training completed. Necessary administrative details related to student records, contract close-out and reporting completed.

NOTE: Step 3 approval chain should be minimal.

SECTION V

CONTRACTING NOTES

INTRODUCTION

Training personnel, in general, have little experience in the area of conducting contractual negotiations in accordance with the ASPR and therefore the procurement team should include representatives of the contracting officer assigned early in the procurement planning cycle.

The ASPR have had a long history of development and have undergone many revisions and modifications based upon legal decisions, legislative actions, and experience. As a result, the ASPR are a viable yet complicated set of procurement regulations to the unindoctrinated. Contractual provisions under the ASPR, however, are available for any reasonable procurement of services but require the professional assistance of contracting personnel to the training agency to properly affect the legal procurement of training services.

Concerning contracted institutional training, the most often asked question by school authorities is: "What do you want the student trained to do and to what depth?" The answer to this two-part question must be resolved before any contractual work statement or description of training can be prepared. The most appropriate method available to accomplish this task is through the use of terminal performance objectives. It should be understood that a clear, detailed statement of the training requirement is the key to the success of the VOTEC program as well as being a necessary and vital part of the contractual document. To assist in the description of training, a Training Specification for VOTEC Training (appendix A) is available and should be used in conjunction with the applicable curriculum or specific training specification.

ARMED SERVICES PROCUREMENT REGULATIONS (ASPR)

Basic concepts of the ASPR include:

1. Equal opportunity for qualified offerors to submit priced bids or proposals for equal services or supplies.

2. Award of the contract to the offeror submitting the lowest reasonable and acceptable bid or proposal cost for the services or products.

3. Impartial and responsible action during the period of the contract by both the Government and the contractor.

Section III of the ASPR covers procurement by negotiation which in most cases will be a method used in VOTEC procurement. Part 2 of section III of the ASPR covers Circumstances Permitting Negotiation (in lieu of formal advertising) which should be reviewed by those involved with VOTEC procurement.

In most cases, the appropriate contractual instrument will be a negotiated "Indefinite Quantity Contract" in accordance with ASPR 3-409 and/or 3-608.

A bilateral contract (with both parties signing) is recommended, whenever feasible, utilizing Standard Form 26 (Award/Contract) and DD Form 1155 (Order for Supplies or Services/Request for Quotations) as the vehicle for ordering services under the contract. The Standard Form 33 (Solicitation, Offer and Award), "single" signature approach, however, may be appropriate in some instances. In addition, small purchase procedures utilizing the DD Form 1155 are permitted for procurements up to and including $10,000 if appropriate under the circumstances of each case.

GENERAL CONTRACT REQUIREMENTS

Of primary importance, regardless of contract type, is the award of a good, legal contract meeting the following requirements and constraints, as applicable:

1. Requirements. Contracts in support of the VOTEC training program may provide capability of the program to function:

   a. In either an institutional or industrial environment

   b. At multiple geographical locations

   c. For basic or advanced entry level skill training

   d. For Regular or Reserve component members

   e. With varied student quantity input

   f. With provisions for payment of a deliverable item (i.e., trained student) rather than by course duration or cost per hour of instruction. See definition of "trained student" contained in the Training Specification for VOTEC Training (appendix A).

   g. With minimal administrative effort, but capable of activating various items of the covering contract as need dictates, particularly if a long-term multiple course type contract is involved.

h. With provision for annual and/or multi-year training endeavors.

i. With provision for entering students in institution-scheduled courses as well as separate all-military student courses.

2. Constraints. The following are considered as practical constraints relative to contractual effort in support of VOTEC training:

a. Contract should be limited to the continental United States, Alaska, and Hawaii.

b. Each contract should not meet or exceed $100,000 per annum.

c. Contract should not be used in competition with service school or interservice school Military Occupational Speciality (MOS)/rate training, but as an adjunct to such training.

d. Training should occur within reasonable commuting distance of students' home duty station.

TYPICAL CONTRACT

1. As previously stated, a typical contract for VOTEC procurement will generally be an "Indefinite Quantity" type and will consist of a cover (award) page, sections, clauses and/or provisions, and attachments in accordance with the Uniform Contract Format prescribed in ASPR.

2. The Standard Form 33 is a solicitation document which may be used for contract award as well as solicitation when the bidder's offer in response to the Government's solicitation (SF 33 and accompanying documentation) is accepted by the Government without further negotiation or significant change.

3. When it is desirable to have both parties sign the contract (e.g., offer submitted by prospective contractor leads to further negotiation), DD Form 26 shall be used for the contract award and replaces the SF 33. Regardless of which form is used for the award, DD Form 1155 is used to place individual orders against the basic Indefinite Quantity Contract. In effect, the basic contract sets forth the overall items, descriptions, conditions, provisions and clauses and the DD Form 1155 is used to place and obligate individual orders for specific services covered by the basic contract.

CONTRACT FORMAT/CONTENTS

ASPR paragraphs 2-201 and 3-501 set forth the details for structuring solicitations, and resulting contracts, in accordance with the Uniform Contract Format (including the Table of Contents). For general information purposes, however, a typical VOTEC solicitation or contract would generally include the following:

Section A - Cover sheet on solicitations only (DD Form 1707 or 1706)

Section B - Contract Form and Representations, Certifications, and other Statements of Offeror:
SF 33 (Used in solicitation and in some instances as cover page of the contract)
DD Form 26 (Contract only when SF 33 not used for contract award)

Section C - Solicitation Instructions and Conditions and Notices to Offerors (Solicitation only)

Section D - Evaluation Factors for Award (as applicable in solicitation only).

The Schedule of the solicitation or contract includes the following sections as applicable:

Section E - Supplies/Services and Prices

Section F - Description/Specifications

Section G - Preservation/Packaging/Packing - not normally needed in a VOTEC contract.

Section H - Deliveries or Performance

Section I - Inspection and Acceptance

Section J - Special Provisions (other than those covered by sections E through I and section K)

Section K - Contract Administration Data

Section L - General Provisions. (Reference to mandatory and other applicable clauses whether included by reference to ASPR or to be included in full text as attachment(s).)

Section M - List of Documents, Exhibits, and Other Attachments included in the solicitation or contract.

In addition, a VOTEC solicitation or contract will generally include, as a minimum, the following attachments:

Attachment (1) -	List of Clauses Incorporated by Reference to ASPR
Attachment (2) -	Copies of clauses included in their full text
Attachment (3) -	Training Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program
Attachment (4) -	Applicable Program of Instruction (POI) or curriculum.

NOTE: The contract provisions and/or clauses required for a VOTEC contract will depend upon the specific training being procured.

EXPLANATION OF CONTRACT SECTIONS. Section E, although brief in nature, must outline clearly all specific items (whether supplies or services) to be priced and delivered or performed under the contract. Section F describes in further detail those items listed in section E and references appropriate specifications which are listed in section M of the contract schedule and included as attachments. Unusual or special conditions or provisions, such as contractor travel, are generally covered in section J. The titles of the other schedule sections are essentially self-explanatory.

An understanding of the above contracting information by training personnel is important since the heart of the contractural package for training is the detailed description of the training parameters and requirements prepared by the training personnel. In the event a particular curriculum or other required course of instruction does not contain specific terminal course objectives, assistance should be sought from the command or service school having cognizance for the type of training required. Curriculum assistance is also available from the Naval Education and Training Program Development Center, Pensacola, Florida.

SECTION VI

TYPICAL SURVEY FORMS

The VOTEC facility and curriculum survey forms included within this section may be used individually or as a total package during the process of evaluating public and commercial sources of basic skills training. The samples included are intended to be used as a basic guide to collect necessary data from which logical conclusions may be drawn during the selection process for the proper facility/contractor to provide the desired training.

A listing of aforementioned forms and comments for their use follows:

VOTEC Training Survey Forms:

Part 1	General Information
Part 2	Instructional Approach
Part 3	Facilities
Part 4	Special Facilities for Training
Part 5	Institutions with Dormitory Facilities

VOTEC TRAINING SURVEY FORM

Part 1. GENERAL INFORMATION

Institution ______________________________

Address ______________________________

Date of Survey ______________________________

A. PERSONNEL CONTACTED:

NAME	TITLE	TELEPHONE

B. Courses of interest to VOTECS program:

TITLE	LENGTH	REASON FOR INTEREST

C. Is institution interested in participating in VOTEC program?

______ Yes ______ No

Under what conditions? ______ Short range ______ Long range ______ Both

NOTES:

Part 1. GENERAL INFORMATION (continued)

D. Has institution had previous experience with VOTEC or other government or commercial training programs?

E. Is institution controlled by: State____ County____ City____ or Independent____?

F. List agencies providing licensing and/or accreditation for institution.

G. Enrollment:

	Full Time	Part Time
Day:		
Evening:		
Total:		

H. List or attach standard tuition and fees schedule.

I. Commuting distance to training facility from military installation.

________miles ________minutes

VOTEC TRAINING SURVEY FORM

Part 2. INSTRUCTIONAL APPROACH

A. Conventional lock step____________ Individualized______________

B. Average class size_______________

C. Instructor/Student ratio: Classroom_______ Laboratory_______

Shop Area_______

D. Typical Instruction: Classroom_____% Seminar_____% Programmed

text_____% Lab/Workshop_____% Self Study_____% Testing_____%

E. Performance Testing: Written_____ Practical_____ Both_____

F. Curriculum Committee: Staff_____ Industry_____ Community_____

Other____

G. Do library services include: Technical books and periodicals_____

Copying machine_____ Audio tapes_____ Microfilm and recorders

_____ Designated study spaces_____

H. Do instructional services include: Audio tape_____

A-V materials_____ Instructional television tapes_____

Micro materials_____ Classroom training aids_____

NOTES:

VOTEC TRAINING SURVEY FORM

Part 3. FACILITIES

NOTE: Recommended Guidelines for Determining Adequate Space:

(1) General classroom - 36 sq ft/student
(2) Laboratory/Shop Area - 75 sq ft/student
(3) Auditorium - 6 sq ft/student
(4) Learning Center w/study carrel - 43 sq ft/student

A. Is training space adequate for:

Classrooms______ Laboratory/Shop Areas______ Auditorium______

Study areas______

B. Are classrooms within______ or adjacent to______ shop areas?

C. Are any safety violations obvious?______ If yes, explain in Notes.

D. In your opinion, how do training areas appear considering the following criteria:

	Good	Marginal	Poor
General appearance			
Condition of equipments			
Training aid availability			
Lighting			
Ventilation			
Heating and cooling			
Noise			
Sanitation			
Layout for student convenience			

E. Is adequate student parking available?______

VOTEC TRAINING SURVEY FORM

Part 3. FACILITIES (continued)

F. List eating facilities available on campus.

FACILITY	SERVICE			
	Breakfast*	Lunch*	Supper*	Snacks

*Insert time service available and approximate cost of meal.

NOTES:

VOTEC TRAINING SURVEY FORM

Part 4. SPECIAL FACILITIES FOR TRAINING
(Use as required)

AIR CONDITIONING, HEATING, REFRIGERATION: Motors and compressors______ Electric systems______ Gas systems______ Ducting and installation______ Other______

AUTOMOTIVE SHOP: Engine diagnosis/tune up______ Engine buildup______ Electrical systems______ Transmissions______ Brakes______ Suspension systems______ Body repair______ Other______

AUXILIARY ENGINES: Boilers______ Distilling______ Other______

COMMUNICATIONS (MAINT. & REPAIR): Synchro units______ Alarm, warning, call bell______ Intercom sys______ Telephone______ Announcing______ Gyrocompass______ Selsyn instruments______ Other______

CONSTRUCTION: Woodworking/Millwork______ Light frame structure______ Roofing______ Painting______ Glazing______ Masonry______ Concrete______ Plumbing______ Other______

DIESEL ENGINES (OPERATION & MAINT.): Caterpillar______ International______ Cummins______ LD 465-1 Multifuel______ Other______

VOTEC TRAINING SURVEY FORM

Part 4. SPECIAL FACILITIES FOR TRAINING (continued)

ELECTRICAL CONSTRUCTION (INSTALLATION/REPAIR): High voltage_____
Low voltage_____ Underground_____ Generators_____
Powerplant control_____ Conduit install/repair_____ Lineman_____

FOUNDRY SHOP: Molder_____ Pattern maker_____ Wood_____ Metal_____
Plaster_____ Foundry facings_____ Casting: (Non-ferrous_____
Ferrous_____ Alloy_____) Cupola furnace_____ Core baking oven_____
Metallurgy_____ Thermite casting_____

MACHINE SHOP: Lathe(s)_____ Drill press_____ Shaper(s)_____
Bench grinder(s)_____ Milling machine_____ Boring mill(s)_____
Power hacksaw_____ Metal engraving pantograph_____ Other_____

METAL WORKING: Sheet metal_____ Gas cutting/welding_____
Arc welding_____ Rigging_____ Metal working_____
Steel erection_____

PRINT SHOP: Offset press_____ Platemaker (copier)_____ Platemaker (burner)_____ Stapling machine_____ Drill (single spindle)_____
Collator: (Manual_____ Auto_____ Photo lab_____ Letterpress_____
Varityper_____ Headliner_____ Light table_____ Copier_____

VOTEC TRAINING SURVEY FORM

Part 5. INSTITUTIONS WITH DORMITORY FACILITIES
(Use as required)

A. HOUSING:

Cost_________

Includes: Dormitory room______
3 meals per day, 7 days per week______
Laundry, Dry cleaning______
Student clinic services______

Capacity: Male______
Female______

Dormitory layout: (Sketch) Condition______________________________

____

Student(s) per room________ Bay_________ Bldg_______________

Furnished with:

Head facilities (per building):

Male: No.____ Toilets____ Urinals____ Basins____ Baths____ Shwr____

Female: No.____ Toilets____ Basins____ Baths____ Shwr____

General condition____

____

Telephone(s)_________ Per Bldg

Study facilities____

____

Messing availability to housing________________________________

____

Building security____

Copy of Dorm. Rules_______ Parking facilities_________ Fees_____

NOTES:

VOTEC TRAINING SURVEY FORM

Part 5. INSTITUTIONS WITH DORMITORY FACILITIES (continued)

B. MESSING FACILITIES:

Capacity_________

Dining Hall condition:____

____

Hrs. of operation: NOTES:

Breakfast________________

Lunch____________________

Dinner___________________

Other____________________

Quality of food_____________

Dietitian __________________

Kitchen____________________ Condition________________________

____

C. MILITARY ADMINISTRATION:

Office space: OIC______ NCOIC______ Clerk______ Supply______

Supply/Storage room:_____________ Location(s)____________________

Civilian housing:____

____

Nearest military admin. support: (Orders, Travel, Finance)________

____

Nearest airport(s):____

Local transportation:____

VOTEC TRAINING SURVEY FORM

Part 5. INSTITUTIONS WITH DORMITORY FACILITIES (continued)

D. COMMUNITY:

Population: ____________________

Transportation: ____________________

Chamber of Commerce: ____________________

Churches: ____________________

Hotels, Motels: ____________________

Housing: ____________________

Recreation: ____________________

____

Local Attitudes: ____________________

____

Medical Facilities: ____________________

SECTION VII

VOTEC SOURCES OF NAVY RELATED INSTRUCTION

The data contained in this section were collected and summarized during calendar year 1974. Each AVSC should collect and maintain within resource capability a current file of available training within its area of jurisdiction. Crossfeed of such information in summarized form between AVSC's is encouraged.

Information is provided as initial start data for 21 ratings by geographical area on pages 32 through 35. The remaining pages, 37 through 56, of this section provide training availability data on the following selected sites:

- Charleston, South Carolina
- Great Lakes, Illinois
- Jacksonville, Florida
- Memphis/Millington, Tennessee
- Meridian, Mississippi
- Norfolk, Virginia
- Orlando, Florida
- Pearl Harbor, Hawaii
- Pensacola, Florida
- San Diego, California

VOTEC SOURCES OF NAVY RELATED INSTRUCTION

RATING	Jacksonville Area	Pensacola Area	Hawaii Area	Meridian Area	Charleston Area
Engineman	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College		Trident TEC Col.
Equipment Operator					
Illustrator Draftsman	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College Leeward College	Meridian College East Central College	
Interior Communications Electrician	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.		East Central College	
Machinist's Mate	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College		Trident TEC Col.
Molder					
Pattern Maker					Trident TEC Col.
Ship's Serviceman		Pensacola Jr. College Geo. Stone VOTEC Ctr.	Leeward College		
Steelworker	Florida Jr. College	Pensacola Jr. College	Honolulu College	East Central College	Trident TEC Col.
Steward	Florida Jr. College	Geo. Stone VOTEC Ctr.	Kapiolani College		
Storekeeper		Pensacola Jr. College	Kapiolani College		

VOTEC SOURCES OF NAVY RELATED INSTRUCTION (continued)

RATING	San Diego Area	Great Lakes Area	Orlando Area	Norfolk Area	Memphis Area
Engineman	City College Evening College	Triton College Gateway Tech.	Mid-Florida Tech.		
Equipment Operator					
Illustrator Draftsman	City College Evening College Grossmont College	*Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Valencia College Seminole College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	State Tech. Institute Memphis Area VOTEC
Interior Communications Electrician	Evening College Grossmont College	Gateway Tech. Triton College		Norfolk State College Thos. Nelson College	State Tech. Institute Memphis Area VOTEC
Machinist's Mate	City College Evening College	*Triton College Gateway Tech.	Mid-Florida Tech. Seminole College	Norfolk VOTEC Ctr. Thos. Nelson College	Memphis Area VOTEC
Molder		Triton College			
Pattern Maker	Evening College				
Ship's Serviceman	Evening College	Lake County College Gateway Tech. Triton College		Norfolk State College	
Steelworker	Evening College	Triton College Gateway Tech.	Mid-Florida Tech. Seminole College	*Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	
Steward	Mesa College Evening College	Triton College	Mid-Florida Tech.	Norfolk VOTEC Ctr. Norfolk State College	Memphis Area VOTEC
Storekeeper	City College Mesa College Evening College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Seminole College	Norfolk State College	

* Exceptional facility

VOTEC SOURCES OF NAVY RELATED INSTRUCTION (continued)

RATING	Jacksonville Area	Pensacola Area	Hawaii Area	Meridian Area	Charleston Area
Lithographer	*Florida Jr. College	Pensacola Jr. College			
Machinery Repairman		Pensacola Jr. College	Honolulu College	Meridian College	Trident TEC College
Yeoman "C"	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Kapiolani College	Meridian College East Central College	
Builder	Florida Jr. College	Geo. Stone VOTEC Ctr.	Honolulu College		
Commissaryman	Florida Jr. College	Geo. Stone VOTEC Ctr.	Kapiolani College		
Construction Electrician	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College	Meridian College East Central College	Trident TEC College
Construction Mechanic	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr	Honolulu College		Trident TEC College
Disbursing Clerk	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Kapiolani College Leeward College		
Electrician's Mate	Florida Jr. College	Pensacola Jr. College Geo. Stone VOTEC Ctr.	Honolulu College	Meridian College East Central College	Trident TEC College
Engineering Aid	Florida Jr. College	Pensacola Jr. College	Honolulu College		Trident TEC College

* Exceptional facility

VOTEC SOURCES OF NAVY RELATED INSTRUCTION (continued)

RATING	San Diego Area	Great Lakes Area	Orlando Area	Norfolk Area	Memphis Area
Lithographer	City College Evening College	*Triton College	*Mid-Florida Tech.	*Norfolk VOTEC Ctr.	Memphis Area VOTEC
Machinery Repairman	Evening College	*Triton College Gateway Tech.	Mid-Florida Tech.	Norfolk VOTEC Ctr. Thos. Nelson College Norfolk State College	Memphis Area VOTEC
Yeoman "C"	City College Mesa College Evening College Grossmont College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Valencia College Seminole College	Norfolk State College Thos. Nelson College Norfolk VOTEC Ctr.	Memphis Area VOTEC
Builder	Evening College	Triton College Gateway Tech.	Seminole College	Norfolk VOTEC Ctr. Norfolk State College	Memphis Area VOTEC
Commissaryman	Mesa College Evening College	Triton College	Mid-Florida Tech.	*Norfolk VOTEC Ctr. Norfolk State College	Memphis Area VOTEC
Construction Electrician	City College Evening College		Mid-Florida Tech.	Norfolk State College Norfolk VOTEC Ctr.	State Tech. Institute Memphis Area VOTEC
Construction Mechanic	City College Evening College Grossmont College	Triton College Gateway Tech.	Mid-Florida Tech.		Memphis Area VOTEC
Disbursing Clerk	City College Mesa College Evening College	Lake County College Gateway Tech. Triton College	Mid-Florida Tech. Valencia College	Thos. Nelson College Norfolk State College Norfolk VOTEC Ctr.	State Tech. Institute Memphis Area VOTEC
Electrician's Mate	Evening College Grossmont College	Triton College Gateway Tech. Lake County College	Mid-Florida Tech. Seminole College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	State Tech. Institute Memphis Area VOTEC
Engineering Aid	Evening College	Gateway Tech. Lake County College	Valencia College	Norfolk VOTEC Ctr. Norfolk State College Thos. Nelson College	State Tech. Institute

* Exceptional facility

BASE: U. S. NAVAL BASE
CHARLESTON, S.C.

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED					
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man	
			NEC	3600	4400	2514	5900	3000	5
			DOD	740	702	510	710	800	
Trident Technical College									
North Campus (B.C.D. TEC) 7000 Rivers Avenue N. Charleston, S.C. 29406	3½ mi. (15 min)	Accredited member of State system of 2-year post-secondary, technical education centers. Heavy emphasis on engineering technologies and industrial crafts. Modern, well-equipped campus.			X				
Palmer Campus 125 Bull Street Charleston, S.C. 29401	7 mi. (25 min)	Specializes in business education at the Junior College level.				X			

S OFFERING NAVY-RELATED CURRICULA

SELECTED		PROPOSED CANDIDATES																	
Machinery Repairman	Yeoman "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
400	2514	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
702	510	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X				X	X		X	X	X		X		X		X		X		
	X															X			

37/38

INSTITUTIONS OFFERING NAVY-RE

BASE: GREAT LAKES NAVAL BASE
GREAT LAKES, IL 60088

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commi
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Triton College River Grove, Illinois	35 mi. (60-75) min.	Public Community College/ Technical Institute. 86 acres, 12 new buildings, 534,416 sq. ft. 104 career programs.		X*	X*	X	X	X
Gateway Technical Institute Kenosha - Racine, Wisconsin	25-35mi. 30 min.	2 nearby campuses Kenosha: 50 acres, 4 modern buildings, 120,000 sq. ft. 4,000 technical course offerings.			X	X	X	
College of Lake County Grayslake, Illinois	11 mi. 15 min.	230 acres, interim facilities during major construction.				X		
William Rainey Harper College Palatine, Illinois	25 mi. 40 min.	9 modern buildings on 210 acres. 11,000 total enrollment.				X		
* - Exceptional Facilities								

ERING NAVY-RELATED CURRICULA

ED	PROPOSED CANDIDATES																	
eoman "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
14	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
10	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X	X	X		X	X	X		X		X	X	X	X		X	X	X	X
X	X			X	X	X	X	X		X	X	X			X	X		X
X					X	X	X			X*					X			X
X					X	X	X			X	X							X

39/40

BASE: JACKSONVILLE NAVAL AIR STATION
JACKSONVILLE, FL 32212

				SELECTED				
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Florida Junior College at Jacksonville Jacksonville, Florida	20-30 miles	A SACSS-accredited community college with 4 campus sites in Jacksonville. Total enrollment in excess of 40,000. Most technical training at new North Campus. Downtown center being developed. Some Navy programs under way.		X*		X	X	X

* - Exceptional Facilities

FERING NAVY-RELATED CURRICULA

CTED		PROPOSED CANDIDATES																	
Yeoman "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper	
2514	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800	
510	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551	
X	X	X	X	X	X	X	X	X		X	X	X				X	X		

BASE: MEMPHIS NAVAL AIR STATION
MILLINGTON, TN 38054

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissa Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
State Technical Institute at Memphis 5988 Macon Cove Memphis, Tennessee 38128	17 mi. 40 min.	A SACSS-accredited Technical Institute. A multi-million dollar facility completed 1968. Vocational-Technical training, with associate degrees and certificates.						
Memphis Area Vocational-Technical School 620 Mosby Avenue Memphis, Tenn. 38105	20 mi. 30 min.	A SACSS-approved post-secondary school offering vocational and technical training. Operates in a well designed modern structure on 7 acres in downtown Memphis. Very flexible self-paced entry level training.		X	X	X	X	X

ERING NAVY-RELATED CURRICULA

TED		PROPOSED CANDIDATES																
an Yeoman "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
14	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
10	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
			X		X	X	X			X	X							
X	X	X	X	X	X	X				X	X	X					X	

BASE: MERIDIAN NAVAL AIR STATION
NAVAL TECHNICAL TRAINING CENTER ("STENNIS CENTER")
MERIDIAN, MISSISSIPPI

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED					
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man	C
			NEC	3600	4400	2514	5900	3000	56
			DOD	740	702	510	710	800	7
Meridian Junior College Meridian, MS 39301	18 mi. (30 min)	A SACSS-accredited Junior College. 4 modern buildings on 27 acre campus. Offers 9 vocational and 5 technical programs.			X	X			
East Central Junior College Decatur, MS	40 mi. (60 min)	A SACSS-accredited Junior College. 27 buildings of various ages, including 4 male, 2 female dorms on 200 acres. 7 vocational and 4 technical programs offered.			X	X			
John Stennis Vocational Complex DeKalb, MS	22 mi. (30 min)	A small, single structure, secondary vocational school. Some adult students in evening. Limited facilities for a few skills.							

FERING NAVY-RELATED CURRICULA

CTED	PROPOSED CANDIDATES																	
Yeoman "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
2514	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
510	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X			X	X		X		X		X	X	X						
X			X	X		X		X		X	X	X				X		
			X	X						X								

BASE: NORFOLK NAVAL BASE
NORFOLK, VA 23511

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED				
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Norfolk State College 2401 Corprew Avenue Norfolk, Virginia 23504	12 mi	SACSS accredited 4-year college. 100 acre campus. 11 modern, well-equipped buildings. Machine shop and foundry under construction. Dormitory space.			X	X	X	X
Norfolk Vocational Technical Center 1300 Military Highway Norfolk, Virginia 23502	8 mi	Public Secondary/Adult Vocational School. Modern construction (1968). 30 acre campus, 126,000 sq. ft. space. Excellent, well-equipped classrooms, workshops, labs. Well-qualified instructors. SACSS accredited.		X*	X	X	X	X*
Tidewater Community College (Frederick) Portsmouth, Virginia	25 mi (40 min)	SACSS approved community college. 750 acre rural campus. Buildings date from WWI, formerly Navy/Marine. Large warehouse contains technical labs, classrooms, and workshops. Program of expansion in planning stage.				X		
Thomas Nelson Community College Hampton, Virginia 23366	15 mi (30 min)	SACSS accredited community college. 2 modern buildings, plus 1 under construction, on 38 acre campus. New Engineering Science building planned. Data links to 4 computers.			X	X		

* - Exceptional Facilities

	PROPOSED CANDIDATES																		
an "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper	
4	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800	
0	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551	
	X	X	X		X	X	X			X					X	X	X	X	
	X	X*	X		X	X	X			X		X				X*	X		
X					X	X				X									
X					X	X	X			X		X				X			

INSTITUTIONS OFFERING NAVY-RELA

BASE: ORLANDO NAVAL TRAINING CENTER
ORLANDO, FL 32813

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man	
			NEC	3600	4400	2514	5900	3000	5
			DOD	740	702	510	710	800	
Mid-Florida Technical Institute 2900 West Oak Ridge Road Orlando, Florida 32809	10 mi	An Area Vocational School accredited by Florida State Dept. of Education. Has 5 air conditioned buildings, total classroom area of 175,000 square feet, 13 shops, 38 classrooms, 4 laboratories, 3 drafting rooms on 140 acre campus. Additional buildings under development.		X*	X	X		X	
Valencia Community College 1800 S. Kirkman Road Orlando, Florida 32811	10 mi	Community College accredited by Florida State Dept. of Education and Southern Association of Colleges and Schools. Modern campus opened 1971. Military personnel stationed in Florida considered residents for tuition.				X			
Seminole Junior College Sanford, Florida 32771	15 mi	Public Junior College accredited by Florida State Dept. of Education and Southern Association of Colleges and Schools. 170 acre campus. Phase I completed 1970. Incorporates area vocational school.				X	X		

* - Exceptional Facilities

NAVY-RELATED CURRICULA

PROPOSED CANDIDATES																	
Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
	X	X	X	X	X		X		X		X				X	X	X
				X		X			X								
X					X				X		X				X		X

49/50

INSTITUTIONS OFFERING NAVY-REL

BASE: PEARL HARBOR

				SELECTED				
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
Honolulu Community College Honolulu, Hawaii	10 mi.	An accredited community college: 25 buildings on a 20-acre campus. Shops and Labs for over 20 trade and technical areas			X		X	
Kapiolani Community College Honolulu, Hawaii	8 mi.	Modern facilities on small campus. Principal buildings for business education, food service education, health service.				X		X
Leeward Community College Pearl City, Hawaii	5 mi.	A complex of modern buildings, including Drafting and Automotive, General Technology, Business and Education, et.al.				X		

ING NAVY-RELATED CURRICULA

D	PROPOSED CANDIDATES																	
an "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
4	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
0	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
	X		X	X		X	X	X		X		X				X		
		X			X												X	X
					X					X					X			

INSTITUTIONS OFFERING NAVY-RELAT

BASE: PENSACOLA NAVAL AIR STATION
PENSACOLA, FL 32508

INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	SELECTED					
				Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commissary Man	C
			NEC	3600	4400	2514	5900	3000	56
			DOD	740	702	510	710	800	7
George Stone Vocational Technical Center Pensacola, Florida	10 mi	A Technical-Vocational complex for high school and adult students. SACSS-accredited. Awards certificates.			X	X	X	X	X
Pensacola Junior College Pensacola, Florida		A 2-year SACSS-accredited Junior College. Campus consists of 23 buildings valued at $21 million on 118 acres in NE Pensacola. Offer associate degree and certificate programs.		X	X	X			X

ING NAVY-RELATED CURRICULA

PROPOSED CANDIDATES																		
man "C"	Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
4	5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
0	710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
X	X	X	X	X	X	X		X		X	X	X			X		X	
X			X	X	X	X	X	X		X	X	X			X	X		X

INSTITUTIONS OFFERING NAVY-RE

BASE: SAN DIEGO NAVAL BASE
SAN DIEGO, CA 92132

				SELECTED				
INSTITUTION	DISTANCE FROM BASE	DESCRIPTION	CODE	Lithographer	Machinery Repairman	Yeoman "C"	Builder	Commi
			NEC	3600	4400	2514	5900	3000
			DOD	740	702	510	710	800
SAN DIEGO COMMUNITY COLLEGES: 1. San Diego City College	3 mi	All colleges accredited by California State Dept. of Education and Western Association of Schools and Colleges. Active military personnel are exempt from Tuition.		X		X		
2. San Diego Mesa College 7250 Artillery Drive	10 mi					X		X
3. San Diego Evening College	Variable Locations	Classes are conducted at above campuses and at some other 56 sites,* including Naval facilities.		X	X	X	X	X
4. Grossmont College El Cajon, Calif.	12 mi	135-acre campus, built 1964. Offers career vocational programs at post-secondary level.				X		

* Mostly apprentice programs
** Exceptional curriculum

G NAVY-RELATED CURRICULA

PROPOSED CANDIDATES

Builder	Commissary Man	Construction Electrician	Construction Mechanic	Disbursing Clerk	Electrician's Mate	Engineering Aid	Engineman	Equipment Operator	Illustrator Draftsman	Interior Communications Electrician	Machinist's Mate	Molder	Pattern Maker	Ship's Serviceman	Steelworker	Steward	Storekeeper
5900	3000	5600	5800	2900	4600	5500	4300	5700	3700	4700	4200	5200	5100	3100	6000	3500	2800
710	800	721	612	542	662	412	652	730	414	623	651	790	790	823	411	801	551
		X	X	X			X		X		X						X
	X			X												X	X
X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X
			X		X				**X	X							

APPENDIX A

NOTE: This appendix is intended to stand alone. Therefore, the pages are numbered separately from the rest of the report. It is intended to be removed from the report and used as is.

TRAINING SPECIFICATION FOR NAVY/MARINE CORPS VOCATIONAL/TECHNICAL (VOTEC) SKILL TRAINING PROGRAM

DEVELOPED BY

TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FL 32813

JANUARY 1975

TRAINING SPECIFICATION FOR NAVY/MARINE CORPS VOCATIONAL/TECHNICAL (VOTEC) SKILL TRAINING PROGRAM

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TRAINING SPECIFICATION FOR NAVY/MARINE CORPS VOCATIONAL/TECHNICAL (VOTEC) SKILL TRAINING PROGRAM

1. SCOPE

1.1 Purpose. This specification sets forth the general requirements for conducting Vocational/Technical (VOTEC) skill training at educational institutions and industrial training facilities for the Navy or Marine Corps. It is intended that specific provisions of this specification will be identified in the Request for Proposal (RFP) or other such contractual documents.

1.2 Application. This specification is intended for use as a contractual requirement; however, general guidelines and concepts are included that will be of interest to training officers and procurement personnel responsible for VOTEC training.

1.3 Constraint. This specification has been designed to be compatible with DoD 3005.2, Non-Industrial Facilities for Mobilization, and shall not be used in any situations which may cause conflict with the intent and purpose of the subject directive.

2. APPLICABLE DOCUMENTS

2.1 List of Documents. The following documents of the issue in effect on the date of the applicable Invitation for Bids or Request for Proposals shall form a part of the specification to the extent specified therein:

Department of Defense	
DoD 3005.2	Non-industrial Facilities for Mobilization
DoD 5220.22M	Industrial Security Manual
Marine Corps	
MCO P1040.31	Career Planning and Development Guide, Volume I (Administration)
MCO P1040.33	Career Planning and Development Guide, Volume III (Marine Enlisted)
MCO P1500.12	Marine Corps Formal Schools Catalog
MCO P1510.23	Design of Course of Instruction
Navy	
CNTINST 1540.1	Task Analysis as the Basis for Training
CNTINST 1540.2	Measurement of Student Achievement

CNTINST 1550.1	Systems Approach to Instructional Program Development
CNETINST 1550.3	Design Standards for Curriculum Outline and Instructor Guides.

2.2 Availability of Documents. Copies of manuals, specifications, standards, and publications, referenced within this specification and appendices hereto, required by the contractor for guidance should be obtained from the procuring activity or as directed by the Procuring Contracting Officer (PCO).

3. TRAINING

3.1 Philosophy. State-of-the-art educational technology postulates that efficient training programs match job performance requirements. This is achieved through use of a systems approach to training utilizing a modular concept of progressive learning experiences to attain predetermined performance standards. A student is "trained" when he has demonstrated the ability to perform the stated objectives or performance standards.

A systems approach to training further implies:

1. A definition of the training task based upon job task analysis that has identified the required skills within the training task.

2. The use of terminal and enabling behaviorial objectives based upon identified skills and subskills to achieve an acceptable base line of student performance.

3. The use of criterion referenced measurements to determine when acceptable base line student performance has been achieved.

4. The use of criterion referenced measurements to identify and correct student deficiencies as they occur rather than at the end of a course of instruction.

5. A validated instructional program sensitive to individual student need even though instruction is presented utilizing a group approach.

3.2 Course Design Model. Following the philosophy of paragraph 3.1 above, a phase or modular training system based upon learning objectives is recommended but does not inhibit a contractor's choice of approach. Empirical training techniques and materials currently being employed in the VOTEC field should be used. In general terms, VOTEC training required shall be a combination of criterion referenced academic and "hands-on" practical training conducted in a laboratory or shop setting to predetermined performance standards. See appropriate course appendix.

3.3 Students. The majority of students entering VOTEC training will be junior enlisted ratings that have recently completed recruit training. Typically, they range in age from late teens to mid-twenties. They may be male or female and from a variety of socio-economic and ethnic backgrounds.

3.3.1 Student Selection. All students will meet Navy/Marine Corps prerequisite entry requirements for the course of instruction concerned.

3.3.2 Student Reporting Instructions. Students reporting for training will be directed to report to a designated individual at the contractor's facility. The names of authorized students for each training course will be provided to the contractor prior to the course convening date. The contractor shall insure that only those personnel selected by the Government are admitted for attendance and participation in training programs procured under the provisions of the contract.

3.3.3 Student Liability Insurance. Contractor furnished student accident liability insurance shall be a consideration of the contractual document. Amount and benefit provisions of such insurance policy coverage may vary according to the type of training being conducted but should meet regulatory guidelines of the Federal Government.

3.4 Facilities. For the purpose of this specification, facilities include classrooms, laboratories, shop areas and the like where training is conducted.

The contractor shall provide a minimum of 36 square feet of classroom floor space and a minimum of 75 square feet of laboratory/shop floor space per student. Space shall be sufficiently soundproof to insure that instructors can be understood and distractions are kept to a minimum. The contractor shall provide adequate heating, cooling, lighting, laboratory facilities, consumable supplies, and laboratory classroom furniture necessary for the health, comfort, and convenience of the student. Exceptions due to large-size equipments or unusual training may be granted on a case-by-case basis.

3.4.1 Inspection. Inspection and approval rights pertaining to the training area prior to and during the period of contractual effort shall be reserved for the PCO or his designated representative.

3.5 Instructors.

3.5.1 Technical Qualifications. All instructors shall possess a thorough technical knowledge of the subject to be taught and be able to demonstrate individual ability to perform tasks that will be required in the practical or laboratory/shop portion of the training course.

3.5.2 Other Qualifications. The instructor shall have experience as a VOTEC training instructor, which includes successful completion of an instructor training course, or equivalent training and experience. He, as an educator, shall have a professional understanding of the principles of learning and teaching methods and be able to demonstrate the ability to apply such principles and methods.

3.5.3 Certification. Instructors shall possess a current certification for specific area of instruction being conducted. Approved issuing authorities are:

1. State or Federal Government

or

2. A professionally recognized agency meeting the approval of the contracting officer or his designated representative.

3.6 Accreditation. Accreditation/certification provides a reasonable warranty that VOTEC facilities and staff meet an acceptable level of professionalism. Commercial basic skill training programs approved by the following agencies are considered acceptable and meeting the Vocational Education Amendments Act of 1968 and the Civil Rights Act of 1964, as amended:

1. Department of Health, Education and Welfare

2. National Association of Technical and Trade Schools (NATTS)

3. Department of Labor

4. State Board of Education

5. State bureaus of schools or other nationally-recognized accreditation agencies such as the Southern Association of Colleges and Schools

6. Certain other professional organizations. (See following paragraph.)

It is recognized that agencies such as NATTS, regional commissions on occupational education institutions, certain nationwide trade unions, and other industrial organizations offer valid credentials to training activities and shall be considered on a case-by-case basis. Vocational/technical training shall be conducted only by contractors able to meet accreditation criteria acceptable to the PCO or his designated representatives.

3.7 Scheduling.

3.7.1A Instructional Periods. Classes will be conducted five days per week, Monday through Friday, not to exceed six hours of instruction per day. Instruction may include formal classroom instruction, individualized self-paced instruction, laboratory practical type training experience, hands-on shop experience, or other innovative instructional approaches, but shall at all times be adequately supervised by a certified instructor. Students may be scheduled an additional two hours per day for library-type research, study periods, and counseling. The contractor may at his discretion occasionally deviate from the above general guidelines providing a cohesive course of instruction meeting the contract requirements is met.

3.7.1B Other Than Normal Hours. In the event unique training requirements dictate instructional activities be pursued during normal shutdown hours; i.e., evenings and weekends, such exceptions should be mutually agreed upon in writing by the contractor and PCO or his designated representative prior to commencement of training.

3.7.2 Due to Absence. In the event student absences of short duration due to illness or other unavoidable circumstances adversely affect a student's training progress, the contractor may request an extension of training time on a day-for-day basis for the student concerned. Such requests shall be directed to the PCO or his designated representative for approval since a contract change warranting a price adjustment may be involved.

3.7.3 Holidays. Classes shall not be conducted on a legal holiday(s), a legal day(s) of mourning, or an institutional holiday(s) normally granted to regular students. Contract period, if required, will be automatically extended at no additional cost to the Government for such holidays to insure completion of the required instruction under the contract.

3.8 Student Attrition.

3.8.1 Resulting From Student Performance. If, at any time, the contractor engaged in giving instruction under a contract shall be of the opinion that the instruction of any student should cease, the PCO, or his designated representative, shall be immediately notified of that fact by the contractor via telephone and followed within three working days by written verification. Further instruction to such student shall continue except in gross misconduct cases until a case investigation has been conducted by the PCO or his designated representative and official notification to continue training or eliminate such student from the instructional program has been received. Expediency by both the contractor and the Government is required. Directions to the contractor shall be relayed to the contractor by the PCO as soon as practical via telephone with written verification to follow within five working days of receipt of contractor's written report.

3.8.2 Resulting From Personal Problems. In the event of a severe student personal problem such as accident, prolonged or critical illness of student or immediate member of family, or death in family, a procedure similar to that contained in paragraph 3.8.1 shall be followed. Only military authority, however, has authority to grant emergency leave of absence in such situations.

3.8.3 Payment Under Attrition Conditions. Payment for services rendered under above situations shall follow a schedule established by mutual written agreement between the contractor and PCO prior to or as part of the contract award.

3.9 Grading.

3.9.1 Approach. During the conduct of the training course(s), the contractor (instructor) shall continually monitor each student's performance. Following the recommended systems approach to training will result in judicious use of criterion referenced pretests, progress tests, and post tests as part of the evaluative process. Criterion test procedures rate individuals with respect to a specified standard of performance in relation to the achievement of the course objectives. Stated another way, the student should be told what he or she is to learn, assisted during the learning process, and tested to ensure learning has been accomplished. Grading, as such, shall be a tool to assist the learning process, not a separate entity unto itself.

3.9.2 Recording Test Results. The following information as a minimum shall be recorded for each written test administered in addition to individual student record entries:

1. Course number and title
2. Dates of testing
3. Number of students tested and class number
4. Identification of the particular test (and test version)
5. Percentage of students achieving the established minimum standard (qualifying).

3.9.3 Ranking Students. Since criterion testing places emphasis on every student's accomplishment of the same objectives at the same minimum standard or level of proficiency, the ranking does not occur.

3.10 Monitoring/Inspection. The Government reserves the right to visit contractor training areas periodically in order to assure compliance with the contract provisions in consonance with Armed Service Procurement Regulation (ASPR). Any visit under the contract by Government personnel shall be coordinated with the school supervisor prior to inspection and an exit interview will be conducted with the supervisor prior to departing. All planned instructional materials and data must therefore be reviewed and concurred in by both the contractor and the PCO or his designated representative prior to contract award.

3.11 Security.

3.11.1 Security Clearances. It is not anticipated that VOTEC training will require security clearances. In the event security clearances are required, the contract shall reflect such requirement by inclusion on DD Form 254.

When required, security regulations shall apply to personnel, training materials, and space being utilized for the training program. Security under the administration of the cognizant field contract administration activity shall be in accordance with the Industrial Security Manual (DoD 5220.22-M).

3.12 Reports.

3.12.1 Student Progress Reports. Tests should measure the student's ability to perform skills taught during formal instruction. Records shall be maintained on each student to cross-reference training modules completed to the student's progress toward skill performance certification. For this purpose, a sign-off sheet for objectives met is adequate. Student progress reports shall be submitted according to the contract schedule.

3.12.2 Special Reports. Such reports shall be submitted by the contractor in cases of prolonged student absenteeism, classroom misconduct, or other situations not compatible with the training program. When such instances occur, the PCO or his designated representative should be immediately notified by telephone and directions requested for report submission.

4. TRAINING SUPPORT

4.1 Contract Training Conferences. Within 15 days after receipt of the solicitation to bid, the contractor shall confirm in writing to the procuring contracting officer a date acceptable to the contractor for a precontract award training conference. The conference shall be convened at such time and place as agreed upon by both parties. One calendar month lead time shall be allowed the contractor to adequately plan and prepare the conference agenda. At the training conference, the contractor shall make a detailed presentation of the proposed training program and data as may have been developed and are required to define and evaluate the contractor's training approach. The contractor, procuring activity, PCO, training support agent and training agent, or their designated representatives, as appropriate, shall review the training program and shall reach an agreement upon detailed requirements of the training to be provided.

4.2 Texts, Miscellaneous Tools and Materials. Such items provided by the contractor are not to exceed the usual charge to regular students. All charges for instruction, textbooks, course materials and supplies shall be specified in the contract schedule.

4.3 Availability of Government Furnished Equipments/Materials (GFE)/(GFM). Such materials, equipments and supplies that are purely military in nature and designated as a requirement for the course of instruction may be provided to the contractor for the period of the contract. The details for providing, use of, and return of such materials are an agenda item of the contract training conference. Such agreements shall meet the provisions of published Government standards for such actions, which generally state that the contractor is responsible for any losses incurred and is expected to return such items in like condition as received, except for reasonable wear and tear.

4.4 Food Service. Provisions for student messing shall be as specified in the contract schedule. Requirements may range, dependent upon location of training site, from a Government-furnished meal ticket to three meals per day, seven days per week at a contractor facility or variations thereof. Other-than-Government dining facilities utilized in the conduct of the training program concerned shall meet standards of the state restaurant and/or education code for the type of facility concerned or such other criteria acceptable to the PCO or his designated representative.

4.5 Dormitory/Student Housing. Living accommodations for conduct of VOTEC training shall be as specified in the contract schedule. For purposes of this specification, dormitory/student housing facilities are defined as living quarters meeting generally accepted criteria in the following areas:

Space - to include living, sleeping, and study areas.

Safety - to include fire protection, emergency exits, and other appropriate safeguards against hazards.

Sanitation - adequate provisions for bathing and personal hygiene.

Environmental - to include ventilation, lighting, heating and cooling.

Furnishings - to include bedding, furniture, linens, and like items.

Cleanliness - to include general cleanliness and state of repair of facilities.

General Services - to include janitorial, linen, laundry, and telephone.

Miscellaneous - to include availability to dining facility, recreational areas, and public transportation.

Such accommodations shall be subject to inspection and approval by the PCO or his designated representative.

4.6 Medical Services. Dispensary type medical services, consisting of first aid and other emergency treatments normally available to regular or resident students, will be an item of contract consideration.

4.7 Transportation. Transportation between the training facility and dormitory/student housing areas shall be as specified in the contract schedule. In the event transportation is required and furnished by the contractor during performance of the contract, it shall be his responsibility to procure and maintain insurance meeting the standards acceptable to the PCO or his designated representative.

5. GLOSSARY OF TERMS

CONTRACT SKILL TRAINING. Those instructional and technical services provided to DoD personnel by commercial or industrial companies and institutions (public or private) by qualified instructors, craftsmen and technicians. Related to core mechanical and technician training in the vocational skills area leading to military job qualification and certification. See Vocational/Technical training (page 18).

CURRICULUM.

1. All training, both military and technical, conducted within a school.

2. An expansion of the curriculum outline into specific topics, along with detailed topic objectives, to include behavior, conditions, and standards.

3. Same as Program of Instruction (POI).

EVALUATION. A logical, deliberate process of making judgments and decisions to appraise the value of a method, procedure, or process. In training, it consists of the following steps:

1. Determining the purposes or objectives
2. Determining the criteria
3. Obtaining information
4. Making judgments
5. Making decisions
6. Recording results.

GOVERNMENT FURNISHED EQUIPMENT (GFE). Equipment which has been selected and is to be furnished by the Government to a contractor or Government activity for installation in, or use with, or in support of the training programs. For purposes of this document, manuals, publications, and drawings, sometimes referred to as Government Furnished Materials (GFM), are included.

INSTRUCTION. The process that occurs during the transfer of knowledge or skills to the learners as a result of planned experiences related to an area of knowledge or endeavor.

INSTRUCTIONAL UNIT. An assembly of lessons which have been integrated either to complete a usable bit of knowledge or skill, or to aid in scheduling a course or program. The basic components of courses. Sometimes referred to as Instruction Module.

INSTRUCTOR. The person doing the teaching. The term "instructor" is commonly used in lieu of "teacher" which is reserved primarily for those positions related to pure academic pursuits.

JOB. A sum total of all the functions or tasks performed within a rating or billet; a Military Occupational Specialty (MOS) or Navy Enlisted Classification (NEC).

JOB TASK ANALYSIS. A procedure for determining the tasks that either are, or should be, performed by personnel occupying a given type of position or fulfilling a given function. Also known as Task Analysis or Skill Analysis.

LEARNING REQUIREMENT ANALYSIS. An analysis of job or task requirements to determine specifically what the student needs to learn. The analysis specifies entry level behaviors, enabling objectives, and terminal performance criteria in the affective, cognitive, and motor performance areas.

LESSON GUIDE. An organized outline of a single lesson topic. It is individual in nature, usually reflecting accepted knowledge or procedures for a specific training situation. Also known as Lesson Plan or Program of Instruction.

METHOD. The means, techniques, procedures used during instruction. There are many methods appropriate for use. Included may be such processes as lecture, recitation, laboratory, examination, study periods, demonstrations, use of training aids, group discussions, reviews, demonstration-performance, panel discussions, role playing, case studies, craftsman, programmed instruction, and coach and pupil methods.

TRAINING PLANNING CONFERENCE. The principal planning conference formally or informally scheduled for the purpose of developing and documenting personnel and training support requirements for new or modified systems or development of a course of instruction.

OBJECTIVES.

1. Behavioral objectives are objectives written in a specified manner in order to achieve a clear and complete statement of instructional intent. Specifically, the following three conditions must be met:

a. Describe explicitly what a student must be able to do upon completion of instruction, clearly identifying the kind of performance that he should be capable of exhibiting.

b. State the important conditions under which the student demonstrates his mastery of the objective, describing elements of the situation fully enough so that the desired performance is clearly distinguishable from other possible behaviors.

c. Specify the standard of performance a student must meet in demonstrating his attainment of the objective, establishing the minimum level acceptable.

2. Learning objectives are an identification, in terms of trainee performance, of the knowledges and skills to be acquired by a learner. Nearly all learning objectives are composed of three elements:

a. Behavior. Identifies what the trainee will do to demonstate what he has learned. Achievement is normally demonstrated by means of a performance test or a written achievement examination or both.

b. Conditions. Describes the conditions (aiding or limiting factors) under which the desired performance is to be demonstrated.

c. Standards. Defines the standards (accuracy or proficiency) which the performance must meet.

3. Performance objectives are a set of specific skills or knowledges which the student must learn and be able to demonstrate upon completion of training. Sometimes referred to as Terminal Objectives.

PROCURING ACTIVITY. The activity assigned the responsibility for procuring or providing the supplies or services.

PROCURING CONTRACTING OFFICER (PCO). The Government contracting officer directing and administering the procurement through the award of the contract and the signing of the actual contractual documents. Administration of portions of the contract after award may be delegated to a designated representative.

READABILITY. The ability to be read and understood. Normally used in describing a difficulty level of material in terms of a standard educational level. A number of testing methods are used to validate readability levels. Trainee materials should not exceed the 9th grade reading level for VOTEC training.

SKILL. Demonstrated ability to use knowledge effectively or capably perform a task.

STUDENT. Generally synonymous with "trainee." However, there is a trend in the direction of terming a person in recruit training, or first follow-on training, as a "trainee" and other personnel under instruction as "student."

SUBJECT. A major division of organized knowledge, such as electronics or aeronautics.

SYSTEM. A composite of subsystems, assemblies, skills, or techniques capable of performing and/or supporting a desired task. A system includes related facilities, items, materials, services, and personnel required for its operation to the degree that it can be considered a self-sufficient item in its intended environment.

SYSTEMS APPROACH. The coordinated integration of relevant subject matter, student, and instructor activities, equipment and facilities, and instructional methods to achieve specific, job-oriented learning objectives.

TASK ANALYSIS. A method by which the knowledge, skill, and affective elements of task performance are systematically examined and recorded. A task analysis brings into focus such items as the classes of behaviors, conditions of performance, and the degrees of proficiency required. Also known as Skill Analysis and Job Task Analysis.

TESTS.

1. Achievement Test. A general term for tests designed to measure relative accomplishment in a specific area.

2. Advancement Examination. An examination given periodically to Navy enlisted personnel to help select those who are to be advanced in rating and pay grade based on the qualifications established by the Manual of Qualifications for Advancement (NAVPERS 18068 series).

3. Criterion Test. A measurement tool used to measure observable behavior.

4. Diagnostic Test. An examination used to spotlight areas of student difficulty with subject matter or the learning situation enabling the instructor to better allot his time according to the difficulty of the individual topic or unit to be taught; a pretest to determine the student's entering level of knowledge.

5. Identification Test. A test in which the student is required to recognize a piece of equipment, a picture of equipment, a verbal description, or its function. May be a performance test, a written test, or other type of test.

6. Performance Test. A sample work situation in which a person being tested performs a practical task for measurement of skill capability against predetermined standards.

7. Pretest. A test administered prior to a course, area, unit, topic, or other portion of a course, to determine knowledges, skills, and attitudes held by a student.

8. Proficiency Test. A test which is designed to measure a person's capabilities in terms of job performance. It may be composed of both performance tests and written tests. A Performance Test is sometimes defined as a Skill Demonstration, while a Proficiency Test is defined as a Comprehensive Procedure used to examine the person's capability to do what the job requires.

9. Progress Test. A test administered at some point in a course, area, unit, topic, or other portion of a course, to determine the degree to which students have accomplished the learning desired.

10. Qualifying Test. A test administered to determine whether a person is qualified for a task for which they have been selected or trained, or for which they are being considered. A Qualifying Test can be constructed as a special type of Progress Test. "Qualifying Test" may also be applied to tests used for selecting personnel for training.

11. Quiz. A short test administered by the instructor to measure achievement on material recently taught or on any small, newly completed unit of work.

12. Written Test. A test in which a person demonstrates their capabilities by written techniques. Not usually a Performance Test, and hence is usually a measure of supporting knowledges rather than skills.

TRAINED STUDENT. A student that has successfully demonstrated achievement of training course performance objectives. For contractual purposes, a "trained student" is a deliverable item for which full course payment is made.

TRAINING ACTIVITIES.

1. Military commands which have a primary mission of conducting or supporting training.

2. The institutions or commercial and industry activities at which courses are offered.

TRAINING AGENT. A bureau, command, office, or headquarters exercising command of, and providing support of, some major increment of the Government's total training effort. Also known as Training Agency.

TRAINING AID EQUIPMENT. Audio-visual equipment which is used by the instructor or student to enhance the process of teaching or learning; and which is not itself the subject of instruction (except when its use or maintenance, in the training environment, is the subject of instruction);

and which generally has applicability for purposes other than training. Sometimes called Instructional Aids Equipment.

TRAINING EQUIPMENT. Equipment designed for training purposes which is used by the instructor or student as an element of the process of teaching or learning. It may be subjected to repeated or continuing usage over an extended period of time without immediate degradation of its useful characteristics. Durable material which is to be expended is not included.

TRAINING PROGRAM. An assembly or series of courses or other requirements which have been organized to fulfill a broad overall training objective.

TRAINING REQUIREMENT.

1. A requirement to train personnel in a specified quantity to perform identified duties and thereafter be available for assignment to the duties at a specified time.

2. A requirement for a training or educational program which will produce trained personnel for an identified purpose.

3. The performance which is required of a person in order to be effective in a given situation.

TRAINING SUPPORT. The providing of resources, such as personnel, funds, facilities, hardware, course materials, and services required to accomplish a training task.

TRAINING TASK ANALYSIS. A system for proceeding from an inventory of tasks, such as that provided by a job task analysis, to an organized set of both terminal and enabling training objectives.

UNIT OF INSTRUCTION. An assembly of lessons which have been integrated either to complete a usable bit of knowledge or skill or to aid in scheduling a course or program. The basic components of courses. Same as "Instructional Unit."

VOCATIONAL/TECHNICAL TRAINING. Vocational/Technical (VOTEC) training is that which teaches occupational skills. It includes vocational shop courses and technical or related technical subjects within the industrial arts field. "Hands-on" practice to develop required skills is inherent within VOTEC training. The objective of such training is to provide the student with entry level knowledge/skill qualifications within a specified craft or trade. Such training may be utilized for attainment of apprentice, journeyman or craftsman certification dependent upon existing standards.

* * *

APPENDIX B

NOTE: This appendix is intended to stand alone. Therefore, the pages are numbered separately from the rest of the report. It is intended to be removed from the report and used as is.

VOTEC TRAINING SPECIFICATION FOR
NAVY LITHOGRAPHER (LI) SKILL TRAINING
COURSE DURATION: 240 HOURS

This Specification is to be used as an
Attachment to the Training Specification

DEVELOPED BY

TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FLORIDA 32813

JULY 1974

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I. GENERAL RATING

"Lithographers perform graphic reproduction with lithographic, letterpress, and related graphic equipment; assist in determining the appropriate style or format for publication; produce and strip negatives and positives; prepare line and halftone camera copy; utilize darkroom equipment; process lithographic plates; set type and prepare forms for printing; operate process cameras, presses, and bindery equipment; and perform organizational maintenance on graphic equipment. These skills are applicable to single-color and multi-color printing."

II. DEFINITION OF LITHOGRAPHER-APPRENTICE BASIC SKILL TRAINING

Basic lithographer skill training is that theoretical and practical training, exclusive of military disciplines that will provide inexperienced entry level personnel with the basic skills to safely and effectively work at an apprentice level in a Navy print shop afloat or ashore.

III. DESCRIPTION OF TRAINING

A. The lithographer basic skill training course is designed to meet minimum skill level requirements at an apprentice level within the Navy. Thus, the training reflects concentration upon proficiency in the area of single-color lithographic processes. These processes include copy composition, production of photo lithographic negatives and plates, operation of offset printing machines, and associated bindery and finishing operations. Orientation type training only is included at the apprentice level for letterpress and multi-color printing processes since they are considered journeyman skills to be developed later in the career field as required.

B. These skill training requirements were developed from current (1974) known shipboard print shop equipment allowance lists and required training to support those equipment allowance lists estimated by experienced personnel from elements of the Management Office, Navy Publications and Printing Service.

IV. STUDENT ENTRY REQUIREMENTS

A. General:

Navy student entry requirements and administrative procedures follow guidelines cited in the Manual of Qualifications for Advancement (NAVPERS 18068C) and Chapter XII of the Enlisted Transfer Manual (NAVPERS 15909B) as amended.

B. Prerequisites:

1. Screening criteria: Standard score of 90 or higher in aptitude area GEN TECH.

2. Physical: No special physical requirements.
3. Security clearance: Not required.
4. Other: Completion of Navy recruit training.

V. COURSE OUTLINE - LITHOGRAPHER (LI 3/4)

Duration - 240 hours 8 weeks 40 training days (6 hrs)

TOPIC	RECOMMENDED TIME
A. Introduction	1 DAY
1. Course Orientation	
a. School Briefing	
b. Course Outline	
c. Grading	
d. Safety	
2. Printing	
a. Papers and Inks	
b. Processes and Equipment	
B. Cold Type Composition	4 DAYS
1. Familiarity with Typewriter	
a. Ribbons	
b. Reduction Guides	
2. Varityper or equal cold type composing machine	
a. Non-justifying	
b. Justifying	
3. Headliner or equal photo composing machine	
4. Mechanical Ruling and Lettering	
5. Press-on Lettering	
6. Clip Art	
7. Proofreading	

TOPIC	RECOMMENDED TIME
C. Negatives	4 DAYS
1. Chemicals and Materials	
2. Negatives	
a. Line (90%)	
b. Halftone (10%)	
3. Positives and Paper Prints	
4. Enlargements/Reductions	
5. Opaquing	
6. Masking	
7. Deflat/Reflat (restripping)	
D. Plates	1 DAY
1. Paper	
a. Direct Image	
b. Photo Direct	
(1) Short Run	
(2) Long Run	
2. Metal	
a. Lithographic (photo mechanical)	
E. Lithographic Printing (Offset)	20 DAYS
1. 10" x 15" offset press	
a. Inspection and set-up	
Operation	
(1) Paper and metal plates	
(2) Line, halftone and solids	

TOPIC	RECOMMENDED TIME
c. Adjustments for paper sizes and weights	
d. Maintenance and repair	
F. Letterpress Printing	5-1/2 DAYS
1. Handset composition	
2. Makeup and lock up	
3. Make ready	
4. Printing	
5. Perforate, die-cut, score, serially number, crash print	
G. Bindery and Finishing Operations	3 DAYS
1. Collating	
a. Hand	
b. Machine (off-line)	
2. Finishing	
a. Folding	
(1) Hand	
(2) Machine	
b. Drilling and Punching	
c. Stapling	
(1) Side	
(2) Saddle	
d. Padding	
e. Cutter Operations	
H. Copy Machines	1/2 DAY

TOPIC	RECOMMENDED TIME
I. Navy Printing Seminar	1 DAY
a. Navy Forms Management Guidelines	
b. Publication Management Techniques	
c. Regulations and Policy	
d. Support Available from NPPS	
e. Specialty Printing	

VI. COURSE PERFORMANCE OBJECTIVES

A. Course performance or terminal objectives correspond to major subtitles listed in section V, Course Outline. These objectives include a single topic listed in the Course Outline or a grouping of appropriate topics within a single objective. Enabling objectives required to reach these terminal performance objectives have purposely been omitted to allow the contractor conducting the training a degree of latitude in the development of his course of instruction designed to meet the overall criteria of the terminal course objectives listed in paragraph B below.

SAFETY NOTE * All course objectives shall include shop safety practices, manufacturer's stated safety procedures for equipments involved in training and the use of operator related procedures and protective devices as appropriate although not specifically called out within individual objectives.

B. Terminal Performance objectives follow:

Objective #1

Outline Reference: V-A-1 (Course Orientation)

Provided handouts, course materials, schedules, and other appropriate materials the student shall be given an orientation to include school ground rules, the proposed course of instruction, grading procedures, and an introduction to safety stressing the importance of the student developing a safety conscious approach to printing operations.

Objective #2

Outline Reference: V-A-2 (Printing)

Provided appropriate texts and samples of materials the student shall be introduced to the basic printing processes and to basic types of papers and inks. Upon completion of instructional period, student should be able to cite the primary features of major categories of paper stock, basic differences between types of inks and where to find in-depth information concerning paper and inks.

Objective #3

Outline Reference: V-B-1 (Typewriter)

Given a typewriter, ribbon, and typing guides, the student shall demonstrate the capability to change either cloth or carbon ribbons on manual or electric typewriters and adjust the typewriter for use with standard typing guides. Student must be capable of providing oral instruction for typewriter setup to yeoman and other personnel that would result in accpetable format and quality of input copy to the offset printing process. Production standard: None. * See Safety Note.

Objective #4

Outline Reference: V-B-2 (Varityper or equal, cold type composing machine)

Provided a varityper cold type composing machine or equal, machine instructions, paper, and rough draft copy of material to be printed; the student shall under the supervision of an instructor set the machine, select the type, and perform copy fitting procedures to compose camera-ready copy acceptable to the instructor. Machine types include both non-justifying and justifying equipment. Production standard: None.
* See Safety Note.

Objective #5

Outline Reference: V-B-3 (Headliner or equal photo composing machine)

Provided a Headliner photo composing machine or equal, machine instructions and film or paper, the student shall under the supervision of an instructor become familiar with machine procedures and capability. Performance level: Introductory-providing safety procedures to be followed by the operator for self practice and without damage to equipment. Production Standard: None. * See Safety Note.

Objective #6

Outline Reference: V-B-4/5 (Ruling and Lettering)

Given basic drawing and lettering equipments, materials, and instructions, the student shall demonstrate to the instructors satisfaction, a basic understanding of layout design standards applicable to simple forms design. Production Standard: None.

Objective #7

Outline Reference: V-B-6 (Artwork)

Provided samples of artist illustrations, clip art, leroy, and press type lettering, the student will identify each type of art, state the general usage of the sample and evaluate the sample in terms of size, color, spacing, and complexity for standard acceptability to the photolithographic process with an accuracy of 75%. Production Standard: None.

Objective #8

Outline Reference: V-B-7 (Proofreading)

Provided a handout containing proofreader's marks, unproofed material, and instructions, the student shall demonstrate a basic understanding of proofreading techniques and cite the importance of proofreading to the satisfaction of the instructor. Production Standard: None.

Objective #9

Outline Reference: V-C-1 (Chemicals and Materials)

Provided samples of chemicals and materials used in the photolithographic process, the student shall without error identify the liquid or substance, state its general use, and cite the safety precautions to be observed working with such substance. Production Standard: None. * See Safety Note.

Objective #10

Outline Reference: V-C-2 through 7 (Negatives)

Provided film, chemicals, and a process camera, the student shall select proper film, load the camera and copy easel, set camera for proper exposure, expose the film, and develop line negative and/or halftone negative on a 1 to 1 ratio, or a designated enlargement or reduction. The negative process includes making positives and paper prints, masking, opaquing, and deflat/reflat processes. Production Standard: Three units per hour. * See Safety Note.

Objective #11

Outline Reference: V-D-1 (Paper Plates)

Provided an electro-static or chemical type platemaking machine, input copy plates, and chemicals, if appropriate, the student shall according to manufacturer's specifications, set up the platemaking machine, select the exposure and timing, expose and process the plate. Finished plate must meet shop quality control standards for clarity and running. Production Standard: 10 per hour. * See Safety Note.

Objective #12

Outline Reference: V-D-2 (Metal Plates)

Provided a platemaking machine, masked negative, proper chemicals and plate, the student shall according to manufacturer's specifications set up the platemaking machine, select the exposure and timing, expose and process the plate. Finished plate must meet shop quality control standards for clarity and running. Production Standard: Eight per hour. * See Safety Note.

Objective #13

Outline Reference: V-E (Lithographic Printing (Offset))

Provided an offset printing press up to and including 11" x 17" size, ink, paper stock, chemicals, processed plates, and job order specifications, the student will inspect and set up the press for running, select proper materials, perform make ready according to job specification sheet, and produce a clear, legible single color line, halftone single page or multipage print run meeting the job specifications. During the print run, the student will perform minor adjustments to the equipment according to manufacturer's equipment specifications. Production Standard: 1500 impressions per hour. * See Safety Note.

Objective #14

Outline Reference: V-F (Letterpress Printing)

The student shall be able to state the difference between offset and letterpress printing. He shall be able to identify basic type styles and letterpress associated equipments and materials such as a composing stick, spacing materials, hand operated slug cutting and mitering machines, and presses. He shall perform or define make ready and operation of hand fed platen presses to include printing, scoring, perforating, numbering, and die cutting methods. Production Standard: None. * See Safety Note.

Objective #15

Outline Reference: V-G (Bindery and Finishing)

Provided either manual or power operated equipment including collators, folders, paper drills, stitchers and cutters, the student will process printed materials according to the job specification sheet. During this process he will set up the machine, perform the tasks involved, making minor adjustments, according to manufacturer's specifications, and deliver a finished product meeting the requirements of the job specification sheet. Production Standards are:

Fold and perforate make ready	4 per hour
Fold and perforate run	850 sheets per hour
Collate make ready	6 per hour
Collate run	850 pieces per hour
Punch and drill	175 units (100 sheet) per hour
Staple, side	250 units (100 sheet) per hour
Staple, saddle	150 units (100 sheet) per hour
Padding	150 pads per hour

* See Safety Note.

Objective #16

Outline Reference: V-H (Copying Machines)

Student shall receive a general introduction to copying machines by a local area manufacturer's representative or other source to include general types and capabilities. Production Standard: None.

Objective #17

Outline Reference: V-I (Navy Printing Seminar)

Students shall receive an orientation to include the administrative and plant operation of a Navy printing facility in the following areas: Printing and binding regulations, Navy Forms Design Guidelines, Publications Management techniques, Speciality Printing sources, and the role of the Navy Publications and Printing Service to provide shore support to the lithographer. Production Standard: None.

VII. TEXTS, EQUIPMENT AND SUPPLIES

A. The following documents are appropriate as basic texts for lithographer training:

1. Rate Training Manual, Lithographer 3&2

Bureau of Naval Personnel, NAVPERS 10452-B. 1969. For Sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (Stock Ordering No. 0500-131-0100).

2. Technical Manual, Offset Photolithography and Map Reproduction.

Headquarters, Department of the Army. TM 5-245, July 1970. May be ordered from Commander, USA - AKG Publications, 1655 Woodson Road, St. Louis, MO 63112.

3. Government Printing Office Publications

a. Catalog and Price List: Blank Paper and Envelopes, Inks, Glues, Miscellaneous Supplies and Services, August 1972.

b. United States Government Printing Office Paper Catalog, May 1972.

Orders and requests for further information concerning the two items above should be addressed to the Government Printing Office, Division of Plant Planning, Paper and Material Control Section, Washington, D.C. 20401 or by calling Code 149, extension 331 at the Printing Office.

4. Manufacturer's equipment handbooks, manuals, etc., for specific equipments utilized within a training program.

B. The following basic equipments with supporting items are recommended for conduct of lithographer basic skill training:

1. Composing equipment:

a. Cabinet, plate storage, w/imposing stone. (Thompson Model 1396-T or equal.)

b. Cabinet, type storage, 24-drawer capacity. (Thompson 12001-T or equal.)

c. Cold type composing machine (Varityper model 1010F or equal).

d. Cutter, lead, rule, and slug. (Rouse-American 20, Table Top or equal.)

e. Photocomposing machine (Varityper Headliner model 820 or equal).

2. Camera and platemaking equipment:

a. Cabinet, film storage, w/cutter, size 25" x 31" (NuArc model FS24C or equal).

b. Camera, process vertical, size 16" x 30" (Robertson model 432 or equal). Similar horizontal models are acceptable.

c. Dryer, film, size 20" x 24" (Southwind model 800 or equal).

d. Offset platemaking unit, flip-top, size 23" x 27" (NuArc model FY26L, w/pulsed xenon light source, or equal).

e. Sink, temperature-controlled, size 36" x 70" (Kreonite model 36-320E, W/RHR, or equal).

f. Table, lineup and register, size 22" x 20" (NuArc model RR26F or equal).

g. Table, plate developing, size 28" x 40" (NuArc model RUB40 or equal).

3. Printing Press equipment:

a. Press, duplicating, offset, size 10" x 15" (Addressograph-Multigraph model 1250 or equal).

OR b. Press, duplicating, offset, size 11" x 17" (Addressograph-Multigraph model 1250 LW or equal).

c. Press, printing, platen, size 8" x 12" or 10" x 15" handfed (Chandler or equal).

d. Cabinet, ink, and roller storage. (Thompson model 15102-T or equal.)

4. Bindery equipment:

a. Collator, sheet, size 17" x 22" (Thomas-Pitney-Bowes model 60R10 or equal).

b. Cutter, paper, hydraulic, size 26-1/2" (Challenge series H, style 265 HB or equal).

c. Drill, paper, single spindle (Challenge, model JF or equal).

d. Folding machine, size 17-1/2" x 22-1/2" (Challenge heavy duty model 175 or equal).

e. Stitcher, paper (Bostitch model 7 or equal).

5. Related equipment:

a. Plate processor, photo-sensitive aluminum, size 12" x 20" (Metal-photo ZIP Processing Machine, model 14-3 or equal) (optional equipment).

b. Copier, electrostatic, and direct image offset platemaker, (size 10" x 15"), (A.B. Dick, model 675 or equal) (optional equipment).

c. Paper punch (GBC Combo, model 222KM), (manual), (optional equipment).

VIII. STUDENT EVALUATION

A. General

1. The approach of performance based skill training requires a continuous evaluation effort to identify student problem areas, effect remedial action, and to determine when a student has met baseline criteria for performance objectives within instructional units of the course. Such units may contain one or more of the following areas or phases:

a. Theoretical or basic knowledge

b. Demonstration of proper method of operation

c. Demonstration of production standards for the operation being conducted. Note: Operator safety and safe shop practices are inherent in all evaluation.

B. Procedural Guidelines

1. The theoretical or basic knowledge and demonstraton of proper method of operation shall constitute a phase weighted at 40 percent and meeting the associated production standard, if applicable, shall constitute a phase weighted at 60 percent for individual instructional units. The combined totals of phases within the instructional unit shall meet a minimum of 80 percent successful completion in terms of 100 percent baseline performance criteria for each individual student.

2. Meeting of the 80 percent success baseline in terms of knowledge and performance goals may or may not occur during individual instructional units since practice will be required to gain proficiency in the production performance standard phase. If the production performance standard for a particular unit of instruction has not been met by a student, the instructor/evaluator may allow the student to progress to the next instructional unit provided the student has met the 80 percent baseline criteria for the theoretical or basic knowledge phase of the instructional unit under question. Otherwise, remedial training or an adverse action is indicated.

C. Grades

1. The ranking of students by numerical grade will not occur; however, the accumulative record of successful completion of unit performance objectives serves as a guide to student performance. This accumulative record shall be the basis for determination of a "trained student" in terms of the contractual effort. In other words, 80 percent success level in meeting all stated performance objectives of the course constitutes a trained student.

D. Production Standards

1. The following production standards represent typical journeyman and apprentice level production standards within the Navy Publications and Printing Service. Apprentice level lithographers are

expected to perform tasks similar to their journeyman counterparts at 1/3 to 1/2 of the production standard.

Operation	Unit	Journeyman Std Per Hour	Apprentice Std Per Hour
Negatives	8-1/2" x 11"	10	3
Paper plates, Short run (SR)	Master	137	75
Paper plates, Long run (LR)	Master	25	10
Metal Plates, exposing & developing	Plate	37	8
10 x 15 press make ready, SR	Make ready	38	12
10 x 15 press LR & metal	Make ready	15	7
10 x 15 press run	Impression	2900	1500
Fold/perforate make ready	Make ready	12	4
Fold/perforate run	Sheet	2595	850
Collate Make ready	Make ready	12	6
Collate run	Handling piece	2800	850
Punch/drill	Impact 100 sheet	350	175
Staple, side	Per unit	500	250
Staple, saddle	Per unit	300	150
Padding	Pad	300	150

IX. RECORDS AND REPORTS

A. General

1. Section 3 of the Training Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program applies.

B. Student Records

1. Individual student progress sheets to be submitted at the completion of training shall cite the performance objectives and date of successful completion. The progress sheet will be open to the student concerned during counseling sessions with his instructor or upon special request. Such records shall be certified for accuracy by the training contractor prior to submission as directed by the procuring contracting officer or his designated representative.

2. Any other student records required are at the discretion of the contractor or as may be required by the procuring contracting officer to support payment for services received.

C. Reports

1. Student progress reports shall be submitted at an appropriate point approximately midway through the course and at course completion as required by the procuring contracting officer or his designated representative.

X. GLOSSARY OF TERMS

CLIP ART - Collections of readymade art.

COLD TYPE COMPOSITION - Typewritten or varityped composition prepared by methods that do not include materials produced with letterpress typesetting equipment.

COLLATE - To assemble pages (sheets) or signatures in correct sequence.

CRASHPRINT - Using metal type to make an impression on all copies of a carbon interleaved set.

DEFLAT - Separating the negatives from the goldenrod masking sheets so that the negatives can be easily filed, retrieved, and reassembled.

DIRECT-IMAGE PLATES - Plates which are imaged by typing, drawing, lettering, or imprinting directly on the plate.

DIE CUT (Die) - Any of various devices for cutting or forming material in a press.

ELECTROSTATIC PLATES - Plates produced by a process during which the image is transferred by a light-sensitive elecyrostatic charge on a special base, as in xerographic copying.

FLAT (STRIP) - To assemble photographic negatives or positives on goldenrod (clayboard) paper or vinyl acetate for contact exposure with a sensitized metal press plate. May contain art as well as text.

HALFTONE - Any photomechanical printing surface or the impression therefrom in which detail and tone values are represented by a series of evenly spaced dots of varying size and shape, varying in direct proportion to the intensity of tones they represent.

IMPRESSION - Inked image received by a sheet of paper or other material in a press or as it runs through the press.

JUSTIFY - To adjust the space between words (or letters) to make all lines come out to the same length.

LETTERPRESS PRINTING - Printing from raised surfaces, such as type and cuts.

LITHOGRAPHY - A planographic method printing based on the chemical repulsion between grease and water to separate the printing from non-printing areas.

LINE COPY - Solid copy, either text or art, suitable for photography without the use of a halftone screen.

LONG RUN - Run refers to the number of impressions made on the press from a given press plate. Metal and some paper plates are designed for long runs (over 5000 impressions).

LOCK UP - Process of locking type forms in the chase or metal frame in which the type form is wedged (locked) before placing it on the press.

MAKE UP - Arrangement of type and cuts into columns and pages by the printer.

MAKE READY - Preparation of the press to obtain proper printing impression including adjustment of feeder, grippers, side guide, pressure between plate and blanket cylinder, impression plate and ink fountain.

MASKING - Blocking out areas of a sensitized film or plate from exposure to achieve light by use of such materials as goldenrod or red paper, aluminum foil, etc.

MECHANICAL RULING - The process of using mechanical drawing equipment for basic forms design or composition.

NEGATIVE - A photographic image in which the tones are reversed.

OPAQUING - The process of blocking out defects or areas in a film where no light transmission is desired.

OFFSET PRINTING - An indirect printing method in which an inked image is printed on a rubber blanket that, in turn, prints or offsets the inked impression onto a sheet of paper.

PADDING - The process of making pads or tablets by cementing the edges of a stack of sheets. A pad generally consists of 100 sheets of paper.

PERFORATING - Piercing the paper with a series of tiny dots or slits for easy separating of a section of a printed sheet after printing.

PLATE - In offset work, the paper or grained zinc or aluminum sheet causing the image.

PLATEN PRESS - Letterpress printing press on which the impression is made when a flat surface called the platen pushes the paper against the type. A job press.

POSITIVE - A photographic reproduction on a plate, paper or film, in which image densities are directly related to the tones of the originals.

PHOTO-DIRECT - An automated plate making process using camera procedures where reproduction copy is exposed on the plate itself without the use of film.

PHOTOMECHANICAL - Any reproduction process in which photography is used in combination with mechanical means to produce a printing surface.

PHOTOSENSITIVE - A coated material, sensitive to light or similar radiation that must be kept in cool, dark environment.

REFLAT (RESTRIP) - To reposition photographic negatives or positives on goldenrod flats, usually to accommodate another size press.

SCORE - To crease or dent paper stock so that it can be easily folded.

SHEET - A piece of paper, normally with a front and back page.

SHORT RUN - Run refers to the number of impressions made on the press from a given press plate. Short run refers to a type of plate used for runs less than 5000 impressions.

SPECIALTY PRINTING - Printing that requires special equipment or processes not normally found in the average print shop; e.g., tags, decals, binders, marginally punched continuous forms, silk screening, etc.

APPENDIX C

NOTE: This appendix is intended to stand alone. Therefore, the pages are numbered separately from the rest of the report. It is intended to be removed from the report and used as is.

VOTEC TRAINING SPECIFICATION FOR NAVY YEOMAN "C" (FLAG WRITER) TRAINING

COURSE DURATION: 14 WEEKS (551 HOURS)

This Specification is to be used as an
Attachment to the Training Specification

DEVELOPED BY

TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FLORIDA 32813

MARCH 1975

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I. GENERAL RATING

The basic rating for this position is Yeoman (YN), an administrative clerk. Yeomen perform the following duties:

- Prepare and type correspondence and reports
- Organize and maintain files
- Perform officer personnel administration and accounting
- Receive office visitors and handle telephone communications
- Perform office secretarial duties
- Perform secretarial duties in connection with investigations and trials
- Maintain records and official publications
- Work with duplicating and audio-recording equipment
- Requisition office supplies

To qualify for the position, recruit training is followed by on-board training and school courses encompassing but not limited to:

- Typewriting
- Classified material
- Correspondence and filing
- Service records and personnel administration
- Legal records and procedures

Advanced schools provide further training in:

- Correspondence
- Personnel administration and accounting
- Legal records and procedures
- Stenography
- Leadership
- Instructional procedures

Skills learned include:

- Touch typewriting
- Good English usage
- How to handle classified material
- Navy disciplinary system including courts-martial and courts of inquiry
- Instructions relating to pay and allowances, travel and transportation, quarters and subsistence
- Procedures for officer personnel administration

Yeomen work aboard ship and at shore stations.

II. DEFINITION OF YEOMAN "C" - FLAG WRITER

The successful graduate of Yeoman "C" training who has achieved a shorthand speed of 100 wpm or better is awarded the NEC 2514 and designated as "Flag Writer."

His duties involve the use of shorthand and typewriting at or above average rate of speed and quality of excellence; preparation of original Navy and business correspondence; composition and answering of social correspondence in accordance with social usage and protocol; exercise of high standard of demeanor, military bearing, personal appearance, and initiative in working with high ranking military officers and civilian officials, and provision of security of classified matter up to and including TOP SECRET.

III. DESCRIPTION OF TRAINING

Yeoman "C" training consists of 551 academic hours of training. Primary emphasis is upon the attainment of Shorthand Skill (439 hours). In addition, 80 hours are devoted to English Grammar and Usage, 17 hours to Social Usage and Protocol, 5 hours to Office Procedures, and 10 hours to Boards and Investigations. The purpose of this training is to enable the Yeoman to perform the functions required in support of the activities of officers of flag rank.

The training objective is to provide organized and intensive training for selected personnel in the secretarial techniques and knowledges commensurate for assignment of such personnel as "Flag Writers."

IV. STUDENT ENTRY REQUIREMENTS

YN 2 and above, in second or subsequent enlistment. GCT and CLER of 110 (no waivers). All trainees must be excellent typists with a minimum speed requirement of 45 wpm. Knowledge of basic shorthand desirable. Only those personnel suitable for independent duty and displaying superior professional competence should be recommended. Completed satisfactory background investigation required for clearance to TOP SECRET.

Navy student entry requirements and administrative procedures follow guidelines cited in the Manual of Qualifications for Advancement (NAVPERS 18068C) and Chapter XII of the Enlisted Transfer Manual (NAVPERS 15909B) as amended.

V. COURSE OUTLINE

A-1. Shorthand - Gregg Shorthand Diamond Jubilee Series

Purpose: To qualify students to record the spoken word accurately in shorthand at a minimum rate of 100 wpm and to transcribe material into final form as required in their duties as Navy Flag Writers.

NOTE: Student/Instructor ratio of 15-1 or less is recommended, due to the complexity of teaching shorthand and the need for individual attention in problem cases.

TITLE	SUBJECT MATTER	HRS.
Introduction	General introduction and motivation to Gregg Shorthand; presentation of basic shorthand strokes.	1
Basic Theory 1	Lessons 1 through 3 of Gregg Shorthand Diamond Jubilee Series (GSDJS). Basic word-forming principles, brief forms, phrasing principles, recall, plate reading, and directed drill. Lessons 1 and 2 of Most Used Words and Phrases (MUSWP).	18
Basic Theory 2	Lessons 4 through 8, GSDJS, basic word-forming principles, brief forms, phrasing principles, recall, plate reading, and directed drill. Lessons 3 through 7, MUSWP. ETV "DOING HOMEWORK."	21
Graded Practical Exercise 1	Dictation test at 20 wpm.	1
Basic Theory 3	Lesson 9 through 14 of GSDJS. Word-forming procedures, brief forms, rapid recall, plate reading, and directed drill. Lessons 8 through 13, MUSWP.	21

TITLE	SUBJECT MATTER	HRS.
Graded Practical Exercise 2	Dictation test at 30 wpm.	1
Basic Theory 4	Lessons 15 through 20 of GSDJS. Coverage of word-forming procedures, brief forms with drill, rapid recall and reading and writing practice. Lessons 14 through 19, MUSWP.	20
Graded Practical Exercise 3	Dictation test at 35 wpm.	1
Basic Theory 5	Lessons 21 through 26 of GSDJS. Coverage of additional theory priciples, brief forms, and reading and writing practice. Lessons 20 through 25, MUSWP.	19
Graded Practical Exercise 4	Dictation test at 40 wpm.	1
Basic Theory 6	Lesson 27 through 32 of GSDJS. Coverage of theory principles, reading and dictation on unfamiliar material, dictation practice on unfamiliar material, and brief form drills. Lessons 26 through 31, MUSWP.	19
Graded Practical Exercise 5	Dictation test at 45 wpm.	1
Basic Theory 7	Lessons 33 through 38 of GSDJS. Coverage of theory principles, reading, dictation practice on familiar and unfamiliar material, dictation tests on familiar and unfamiliar material, brief form drill and test. Lessons 32 through 37, MUSWP.	20
Graded Practical Exercise 6	Dictation test at 50 wpm.	1
Basic Theory 8	Lessons 39 through 44 of GSDJS. Coverage of theory principles, reading, dictation practice on familiar and unfamiliar material, brief form drill and official brief form test. Lessons 38 through 43, MUSWP.	19

TITLE	SUBJECT MATTER	HRS.
Graded Practical Exercise 7	Dictation test at 50 wpm on unfamiliar material.	1
Basic Theory 9	Lessons 45 through 47 and 56 through 58 of GSDJS; dictation practice on familiar and unfamiliar material, completion of basic theory, and beginning of theory review.	20
Advanced Theory 1	Lessons 59 through 63 of GSDJS; complete theory review and pyramid plan for speed building. Graded practical exercises on taking dictation of military material. *Manual for Military Dictation*.	14
Graded Practical Exercise 8	Dictation tests at 60 wpm.	6
Advanced Theory 2	Lessons 64 through 68 of GSDJS; theory review, *Manual for Military Dictation*, typewriter transcription, shortcut hints, and general dictation.	17
Graded Practical Exercise 9	Dictation tests at 70 wpm.	4
Speed Building 1	Military dictation and transcription, military vocabulary drill, and tape recorder practice.	15
Graded Practical Exercise 10	Dictation tests at 70 wpm.	4
Speed Building 2	Military dictation and transcription, speed building, sustained dictation, vocabulary drill and tape recorder practice.	15
Graded Practical Exercise 11	Dictation tests at 80 wpm.	5
Speed Building 3	Military dictation and transcription, speed building, sustained dictation, vocabulary drill, tape recorder practice, and testing at 90 wpm and higher.	15
Examination 1	Dictation tests at 90 wpm and higher.	4

TITLE	SUBJECT MATTER	HRS.
Transcription 1	Military dictation and transcription, speed building, and testing at 90 words per minute and higher.	15
Examination 2	Dictation tests at 90 wpm and higher.	4
Transcription 2	Military dictation and transcription, speed building, and testing at 90 words per minute and higher.	10
Examination 3	Dictation tests at 90 wpm and higher.	4

A-2. Shorthand Track-out

Purpose: To provide additional instruction and reinforcement for Navy personnel and thus enable them to take dictation at speeds of 100 to 120 wpm and to transcribe material into final form as required in their duties as Flag Writers.

TITLE	SUBJECT MATTER	HRS.
Basic Theory 1 Reinforcement	Basic word-forming principles, brief forms, and phrasing principles presented in lessons 1 through 3 of Gregg Shorthand Diamond Jubilee Series, and lessons 1 and 2 of Most Used Words and Phrases.	4
Basic Theory 2	Shorthand plates presented in lessons 4 through 8, GSDJS; lessons 3 through 7, MUSWP; and practice utilizing audio tape.	6
Basic Theory 3 Reinforcement	Lessons 9 through 14 of GSDJS; lessons 8 through 13, MUSWP; plate reading practice lesson 12, GSDJS; and audio tape.	4
Basic Theory 4 Reinforcement	Lessons 15 through 20, GSDJS; lessons 14 through 19, MUSWP; lesson 50, GSDJS; and dictation practice utilizing audio tape.	4
Basic Theory 5 Reinforcement	Lessons 21 through 26, GSDJS; lessons 20 through 25, MUSWP; dictation practice on plates in lesson 51; and dictation practice on audio tape.	4
Basic Theory 6 Reinforcement	Lessons 27 through 32, GSDJS; lessons 26 through 31, MUSWP; dictation practice on plates in lesson 52; and audio tape.	4

TITLE	SUBJECT MATTER	HRS.
Basic Theory 7 Reinforcement	Lessons 33 through 38, GSDJS; lessons 32 through 37, MUSWP; dictation practice plates in lesson 53; and audio tape.	4
Basic Theory 8 Reinforcement	Lessons 39 through 44, GSDJS; lessons 38 through 43, MUSWP; dictation practice on plates in lesson 54; and audio tape.	6
Basic Theory 9 Reinforcement	Lessons 45 through 47 and 56 through 58, GSDJS; lessons 44 through 47, MUSWP; word drill on theory review principles; and dictation practice using audio tape.	8
Advanced Theory 1 Reinforcement	Shorthand lessons 59 through 63, GSDJS; word drill on theory review principles; and dictation practice on audio tape.	8
Advanced Theory 2 Reinforcement	Advanced theory lessons 64 through 68, GSDJS; word drill on theory review principles; and dictation practice on audio tape.	8
Speed Building 1 Reinforcement	Shorthand speed lessons 69 and 70, GSDJS; dictation practice on audio tape; and dictation practice on speed building tapes at speeds of 70, 80, and 90 wpm.	9
Examination 11	Dictation at a rate of 70, 80, or 90 wpm on unfamiliar civilian dictation material.	2
Speed Building 2 Reinforcement	Shorthand speed by dictation practice and vocabulary building from lessons 1 through 5, Gregg Dictation, Diamond Jubilee Series; tapes at 80, 90, and 100 wpm.	8
Examination 12	Dictation at a rate of 80, 90, or 100 wpm on unfamiliar civilian material.	2
Speed Building 3 Reinforcemnet	Increased shorthand speed by dictation practice and vocabulary building from lessons 6 through 10, GSDJS; tape recorder practice on speed building tapes at speeds of 100, 110, and 120 wpm.	2
Examination 13	Dictation at speeds of 90, 100, or 110 wpm on unfamiliar civilian material.	1

TITLE	SUBJECT MATTER	HRS.
Transcription 1 Reinforcement	Shorthand proficiency by dictation practice on lessons 11 through 15, Gregg Dictation Diamond Jubilee Series; tape recorder practice on speed building tapes of 100, 110, and 120 wpm; dictation practice and vocabulary building on Previewed Paragraph Drill, MMD.	4
Examination 14	Dictation tests at speeds of 100, 110, and 120 wpm.	1

B. English Grammar and Usage

Purpose: To provide student with a working knowledge of the principles of English grammar and usage as required of a Flag Writer, NEC 2514.

TITLE	SUBJECT MATTER	HRS.
Introduction and Use of Textbook	Introduction and motivation; outline of subject, use of text, and critique of diagnostic pretest.	1
Spelling	Memory aids and spelling rules.	1
Dictionary	Use of the dictionary.	1
Principles of Writing	The basic techniques of effective writing.	1
Sentence Structure	Function and use of subject, verb, phrases and clauses, complements, objects, modifiers, and connectives; use of coordination, subordination, and parallelism.	11
Composition	Instruction in how to prepare for writing; composing material using fundamentals taught in previous hours.	2
Word Usage No. 1	Study of words most frequently misused and misspelled by the stenographer.	2
Review No. 1	Review of preceding 19 hours.	1
Examination and Critique No. 1	Examination and critique covering preceding 19 hours.	2
Capitalization	Sentence beginnings, titles, and military capitalization.	2

TITLE	SUBJECT MATTER	HRS.
Word Usage No. 2	Measuring vocabulary; study of words most frequently misused and misspelled by the stenographer.	3
Sentence Structure No. 1	Review of run-on sentences, fragments, parallelism, coordination, and subordination.	1
Punctuation 1	Periods, question marks, exclamation marks, commas, semicolons, colons, dashes, italics, parentheses, hyphens, apostrophes, and quotation marks.	10
Punctuation 2	Periods, question marks, exclamation marks, commas, semicolons, colons, dashes, italics, parentheses, hyphens, apostrophes, and quotation marks.	5
Paragraph Construction	Review of writing techniques; composing material using fundamentals of capitalization, word usage, and punctuation taught during past 21 hours.	1
Review No. 2	Review of preceding 22 hours.	1
Examination and Critique No. 2	Examination and critique covering preceding 41 hours.	2
Agreement	Subject-verb agreement, pronoun-antecedent agreement, and adjective-noun agreement.	7
Military Capitalization and Punctuation	Military capitalization rules. Punctuation of identification lines, including reference lines, addresses, and dates. Military abbreviations. Review of military format.	6
Review No. 3	Review of preceding 13 hours.	1
Examination and Critique No. 3	Examination covering preceding 61 hours.	2
Case Usage	Use of nominative, possessive, and objective case forms of pronouns. Military error detection exercises.	5
Modifiers	Elimination of deadwood; use of modifying words, phrases, and clauses; avoidance of errors in placement of modifiers. Military error detection exercises.	4

TITLE	SUBJECT MATTER	HRS.
Review No. 4	Review of preceding 14 hours. Military error detection exercise.	2
Examination and Critique No. 4	Examination and critique covering preceding 74 hours.	2

C. Administrative Procedures

1. Social Usage and Protocol

TITLE	SUBJECT MATTER	HRS.
Duties and Responsibilities as a Writer	Military bearing, personal appearance and office demeanor.	1
Flag Orientation	Duties of a receptionist, use of proper telephone procedures, and discussion of the relationship to orderlies, drivers, stewards, and boat crew.	1
Protocol	Principles of official entertaining, emphasizing planning considerations, precedence, and invitations.	2
Invitations	The guidelines and text of formal invitations, how to reply to formal invitations, to prepare regrets in wirting, to withdraw an acceptance, and to prepare formal and informal invitations.	4
Seating Arrangements	Precedence and proper seating arrangements.	1
Informal Class Workshop	Preparation of invitations, acceptances, regrets, and withdrawals of acceptance.	1
Critique and Review of Informal Class Workshop	Review and critique of errors committed in workshop conducted in previous hour of instruction.	1
Change of Command Ceremony	Preparation of invitations and programs for change of command ceremony, seating arrangements, and the reviewing line.	2
Formal Class Workshop	How to complete invitations, and a combined acceptance and regret to an invitation.	1

TITLE	SUBJECT MATTER	HRS.
Critique and Review of Formal Class	Review and critique of errors committed in workshop conducted in previous hour of instruction.	1
Examination and Critique	Examination and critique of material presented in preceding 15 hours.	2

2. Office Procedures

TITLE	SUBJECT MATTER	HRS.
General	Tasks for the workday, preparation of SF 83, summaries of conversation on DA Form 751, routing of correspondence on DD Form 95, scheduling of appointments, and proper telephone procedure.	5

3. Boards and Investigations

TITLE	SUBJECT MATTER	HRS.
Introduction to Military Boards and Investigations	The purpose, functions, and types of military boards and investigations.	1
Military Boards	Military Boards format, rules and board procedures.	2
Preparation of Report of Board Proceedings	Preparation of reports of board proceedings.	1
Simulated Board	Recording and transcribing a simulated military board.	5

VI. COURSE PERFORMANCE OBJECTIVES

Administrative Note: Course performance objectives correspond to the general sequence of subjects cited in section V, Course Outline. These objectives may include a single topic listed in section V or a grouping of appropriate topics within a single objective equating to terminal objectives for the course.

When the trainee completes this course of instruction, he will be able to:

1. Demonstrate the ability to utilize the Gregg Diamond Jubilee Shorthand system to take dictation at 100 wpm for 3 minutes and transcribe dictated material with 95 percent accuracy; i.e., a maximum of 12 errors.

2. Demonstrate knowledge of, and correct usage of, the principles of English grammar, as listed in course outline, through successful completion of written practical exercises and comprehensive examinations with a minimum score of 70 percent.

3. Describe the responsibilities, military bearing, and demeanor and standards of office practice required of a Flag Writer, subject to objective evaluation of satisfactory by instructor staff.

4. Demonstrate familiarity with Navy and civilian social protocol through successful completion of a written examination with a minimum score of 70 percent.

5. Demonstrate, through practical exercises, his ability to prepare invitations, acceptances, regrets, and other social correspondence in proper format with a minimum score of 70 percent.

6. Describe in proper sequence the preparation of a written program for:

   a. A change of command ceremony

   b. The visit of a dignitary, including escort officers' duties

   c. The planning, organizing, and conduct of official and unofficial social affairs.

The above to be demonstrated through successful completion of a written examination with a minimum score of 70 percent and/or an objective evaluation of satisfactory by instructor staff.

7. Describe, either orally or in writing, the principles related to hosting formal and informal dinners, with a minimum score of 70 percent, without references.

8. Describe, with an evaluation of satisfactory by the instructor, the organization and duties of:

   a. A Staff

   b. The Chief of Staff/Chief Staff Officer

   c. The Flag Lieutenant/Aide

   d. The Flag Secretary/Aide

9. Demonstrate knowledge of sources of directives related to Social Usage and Protocol, Navy organization, and duties and responsibilities of Flag officer personnel, through comprehensive written and practical examination, for a minimum score of 70 percent.

10. Demonstrate, through written and practical exercises and examinations, knowledge of Office Procedures and Boards and Investigation, as prescribed by JAG Manual, with a minimum score of 70 percent.

11. Given a typewriter and unfamiliar text, demonstrate ability to prepare typed materials, in proper format, at a speed of not less than 45 wpm for a period of 5 minutes, with a maximum of 5 errors.

VII. TEXTS, EQUIPMENT AND SUPPLIES

Shorthand

Gregg Shorthand Diamond Jubilee Series

Most Used Words & Phrases

ETV: Doing Homework (or equivalent)

Manual for Military Dictation

Audio tapes - dictation.

English

McGraw-Hill: Handbook of English

Webster's New World Dictionary

GPO Style Manual

SECNAVINST 5216.5B, Correspondence Manual

BUPERSINST 2340.1B, Authorized Abbreviations and Brevity Codes

Administration

JAGINST 5800.7A, Manual of the Judge Advocate General

Social Usage and Protocol

OPNAV 092-P1, Social Usage & Protocol Handbook

NAVEXOS P-1035, Navy Public Information Manual

NWP-12 (B)

Naval Orientation, NAVPERS 16138D

Enlisted Transfer Manual, NAVPERS 15909B

U.S. Navy Regulations, 1948

Naval Customs, Traditions, & Usage: Lovette, U.S. Institute, 4th ED. 1959 (or later)

Yeoman 3 and 2, NAVPERS 1024-F

Yeoman 1 and "C," NAVPERS 10241-D

Equipment

IBM Executive Typewriters or equal

IBM Selectric Typewriters or equal

Tape Recorder

Practice Shorthand Tapes

Individual Headsets

Gregg Shorthand Audio Tapes

ETV Equipment or equivalent

VIII. STUDENT EVALUATION

A. General

1. The instructional techniques related to performance-based skill training require a continuous evaluation process to identify student problem areas, to effect remedial action, and to determine when a student has satisfactorily achieved the competence required by baseline criteria for performance objectives within instructional units of the course. These units will normally include:

a. Theoretical or basic knowledge

b. Demonstration of the proper method of performance

c. Demonstration of quantitative and qualitative standards for the skills and knowledge required by the trainee's job assignment.

B. Procedural Guidelines

1. The theoretical or basic knowledge and demonstration of proper method of operation shall constitute a phase weighted at 40 percent; meeting the associated performance standard, if applicable, shall constitute a phase weighted at 60 percent for individual instructional units. The combined totals of phases within the instructional unit shall meet a

minimum of 70 percent successful completion of theoretical or basic knowledge, and 100 percent performance criteria for shorthand and typing skills.

2. Meeting of the 70 percent to 100 percent success baseline in terms of knowledge and performance goals may or may not occur during individual instructional units since practice will be required to gain proficiency in the performance standard phase. If the performance standard for a particular unit of instruction has not been met by a student, the instructor/evaluator may allow the student to progress to the next instructional unit provided the student has met the 70 percent baseline criteria for the theoretical or basic knowledge phase of the instructional unit under question. Otherwise, remedial training or an adverse action is indicated.

C. Grades

1. The ranking of students by numerical grade is not required; however, the accumulative record of successful completion of unit performance objectives serves as a guide to student performance. This accumulative record shall be the basis for determination of a "trained student" in terms of the contractual effort. In other words, the 70 percent/100 percent success level in meeting all stated academic and performance objectives of the course constitutes primary evidence of qualifying performance.

D. Production Standards

1. The following production standards represent minimum performance standards with the Navy for Flag Writers:

SKILL	SPEED	ACCURACY
Shorthand (Gregg)	100 wpm for 3 min.	95 percent (max. 15 errors)
Typing	45 wpm for 5 min.	Maximum 5 errors

IX. RECORDS AND REPORTS

A. General

1. Section 3 of the Training Specification for Navy/Marine Corps Vocational/Technical (VOTEC) Skill Training Program applies.

B. Student Records

1. Individual student progress sheets to be submitted at completion of training shall cite the performance objectives and date of successful completion. The progress sheet should be open to the student concerned during counseling sessions with his instructor or upon special request. Such records shall be certified for accuracy by the training contractor prior to submission.

2. Any other student records required are at the discretion of the contractor or as may be required by the contracting officer to support payment for services received.

C. Reports

1. Student progress reports shall be submitted at an appropriate point approximately midway through the course and at course completion to a training agent designated by the contracting officer.

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